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THE

OPHTHALMOSCOPE

A MONTHLY REVIEW OF CURRENT OPHTHALMOLOGY.

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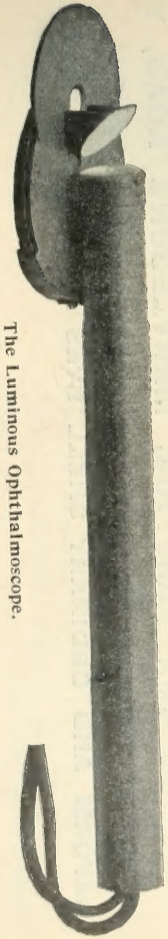

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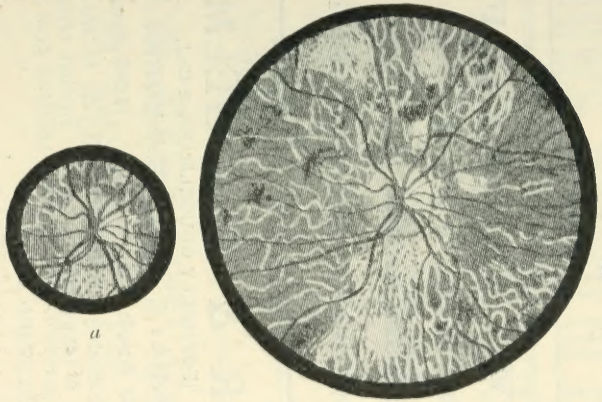

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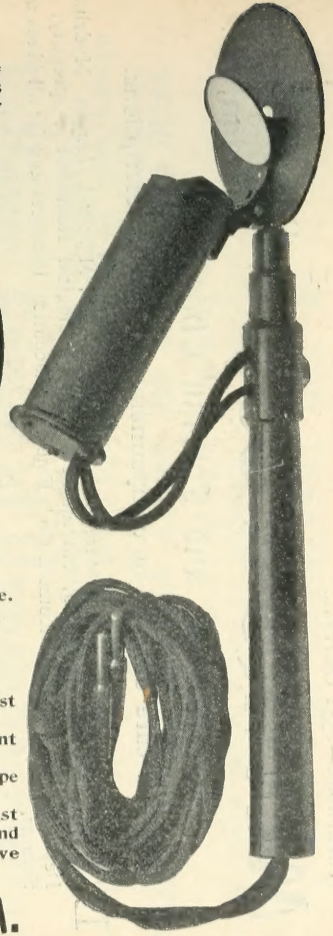

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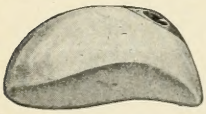

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ORIGINAL COMMUNICATIONS.

SOME PRACTICAL REMARKS ON MAGNET OPERATIONS [1]

BY

PROFESSOR J. HIRSCHBERG, M.D.,

OF BERLIN, GERMANY.

My experience with the magnet now extends over a period of more than twenty-five years, during which time I have performed three hundred and seven magnet-operations.[2] In addition, I have followed with the greatest care all the literature of the subject, in which I am sorry to state, I have, even recently, found assertions made and rules set up which I cannot believe to be either right or useful. For instance, the statements, which are constantly repeated, by some even of the most competent eye surgeons, that a freshly wounded eye, which may contain a deeply embedded iron splinter, should be attacked at once with the giant magnet, and that an eye in which no pain is felt by the patient must necessarily

[1] A communication read in the Section of Ophthalmology at the Annual Meeting of the British Medical Association, Oxford, July, 1904.

[2] Some of these were performed by my assistants during my absence on vacation, but they were done according to my principles, and with the results I am accustomed to see.

contain no iron-splinter, appear to me to be wrong as regards the surgeon and harmful as regards the patient. It is wrong, because in my own practice I have had more than a dozen cases in which the presence of a splinter was proved by means of previous sideroscopy, radiography, or even ophthalmoscopy, but no pain was noticed from the giant magnet, and by its proper application the splinter was immediately extracted. It is harmful, because in some cases, as I am informed, this handling has drawn a large splinter into the ciliary body, whence it could not be extracted, so that occasionally the eye was lost.

Wrong, and of no advantage, is also the assertion of my friend, Professor Hermann Knapp, namely, that the use of the sideroscope requires the patience of a saint, an assertion adopted by my colleague, Professor Haab. Knapp, however, confessed to me a few weeks ago in Berlin, that his assertion referred to the old sideroscope of Asmus. However, I dare say that the remark was not correct even of that instrument, had it been properly erected and fixed. But, now, in cities and towns which are provided with an electric street current, the instrument of Asmus has entirely outlived its usefulness. My own improved and simplified sideroscope still retains its utility, and supplies a surprisingly simple and absolutely sure test. It is only necessary, as with other instruments, to keep it in good order, and immediately before and after each operation to examine it by means of a milligramme test-piece of iron fixed on a thin bar of nickel.

Sideroscopy must be tried before surgical interference, in order to ascertain the existence, the position, and the approximate weight of the iron-splinter within the eyeball. The Roentgen photograph, also, ought not to be despised, as it is by some excellent authors, although, of course, it is superfluous in fresh cases which come to the surgeon immediately after the injury or on the following day, and also in some older cases in which the splinter can be recognised by means of the ophthalmoscope. Without doubt, a clear ophthalmoscopic picture is far superior to the Roentgen photograph, but in every old case and in fresh ones in which the splinter is not visible the Roentgen picture is indispensable.

I must now draw attention to the next most important fact in cases of injury to the eye, *viz.*:—that if a splinter of iron has penetrated into the vitreous or the retina and be not properly extracted, vision of the eye is, sooner or later, lost. I do not speak of bulky splinters, which at once destroy the sight, nor of highly infective particles, which destroy the eyeball within a few days, but I speak of smaller and not remarkably infective splinters, which appear to be encap-

sulated and generally destroy vision, it may be within a few days or weeks, or it may be in a few years, either by shrinkage of the vitreous and detachment of the retina, or by siderosis of the globe and destruction of the ganglion cells of the retina. Of course, at every meeting of members of our profession there are men of experience, who have observed one case or more of splinters fixed in the retina without damage, it may be, for ten years or more ; but these are rare exceptions. If we observe a series of early cases and have opportunity to do so for a considerable length of time, we find that one case after the other falls out of the favourable group and ends in blindness. When I first commenced practice we dared not touch quiescent eyes with encapsulated splinters but fair vision : so I saw several cases which did excellently for a certain time, but which returned some years later with blinded eyes ; even one case which had a splinter in the retina with fair sight for twenty years became blind four years later. Nothing but the early extraction of the splinter or the premature death of the patient can prevent this blindness.

In the first decades following the introduction of the ophthalmoscope we collected the cases of eye injury by splinters mentioned in literature, and in 1875 I added to the five then known a sixth splendid case of a splinter in the retina with almost normal vision. But, twenty-six years later the man came back to me : the eye was absolutely blind with cataract and cyclitis—in fact, had become blind a year after my first observation. Thus, in my opinion, we are bound to extract the splinter from the eyeball, if we are able to do so without serious damage to the structures of the eye. In particular, we must operate upon the fresh cases : first, because we are unable to diagnose whether the splinter in the vitreous or the retina be septic or not ; secondly, because extraction is easier before dense encapsulation. But accurate diagnosis is indispensable : a good instrument needful : a correct plan necessary ; and some experience desirable. Finally, these operations are by no means easy and cannot be compared with cataract extraction, when we expect that the surgeon who begins certainly ends by extracting the cataract.

The results of all this surgery taken together are not yet entirely satisfactory. I am in a position to judge, as often cases have been sent to me either by professional brethren who attempted, but failed, to extract the splinter, or by our own legal steel and iron trade unions, and also because I have often had to estimate the degree of damage for an injured workman, according to our social legislation.

I daresay, that even up to date there are several eyes containing iron splinters which have been lost, either because the

splinter was overlooked or was not extracted in due time, or because a wrong plan was followed, or inappropriate instruments were used.

Concerning instruments, I have no prejudice, for I use all that are useful—my hand magnet, the middle-sized, and the giant magnet. It was and is a fable, that my hand magnet is a *pincette* with no action at a distance. It has for years proved a useful instrument, and is now a more powerful one, as it is attached to the main electric current. I have, indeed, performed some really ideal operations with this manageable and handy instrument. Thus, the injured workman arrives an hour after his accident ; in the inner-lower quadrant of the eyeball is a meridional wound through the three coats, 3 mm. long, and 4 mm. distant from the edge of the cornea ; a retinal hæmorrhage on the boundaries of the ophthalmoscopic field in the same quadrant covers the splinter ; there, too, is the greatest deflection of the magnet needle. The patient sits, the surgeon opens the lids with his left hand, and with his right he slowly approaches the point of the hand-magnet in the line which unites the middle of the wound with the supposed seat of the splinter. When the point is about 10 mm. distant from the wound, the splinter is attached to the magnet without gaping of wound or turning up of flap, a magic sight for the surgeons present. Result absolutely perfect—patient now more than three years under observation.

In other cases it has been sufficient only to touch the wound in order to secure the same result. In a third group it was necessary to introduce the point of the hand magnet to obtain the same effect. In the last group the magnet acts like the British policeman—it arrests by touching. It is incorrect that the careful introduction of the sterilized point of the hand magnet causes loss of the eyeball by infection or by detachment. On the other hand, I would disapprove of the introduction of the bulky and not guidable point of the giant magnet, a plan lately suggested by some excellent authors.

It is a fable that my hand magnet does " not act through the coats," as one of my transatlantic friends has stated. In several cases I secured with my hand magnet the splinter (of 7 milligrammes or of less than 1 milligramme) out of the vitreous into the anterior chamber or behind the iris, whence extraction was easy and harmless.

But, I am not one of those surgeons who insist upon the exclusive use of their own instruments, and I sometimes finish with the giant, when it seems easier or quicker. Certainly the hand magnet renders considerable help even in those cases in which the splinter is finally extracted by the giant. When

I see the splinter deeply embedded in the fundus, and diagnosis and localisation are properly made, I like to approach the largest end of my hand magnet to the corresponding point of the outer surface of the globe and try to raise the splinter from its bed by short movements of the instrument. Then, I use the ophthalmoscope immediately, and if the splinter has come out a little, I try to complete the work with the hand magnet, or I apply the giant and thus better avoid dragging the splinter into the ciliary body. This unfortunate event has occurred but once in my practice, and then in an old case which came already with detachment of the retina.

The third use of the hand magnet is to extract through the corneal section the splinter introduced into the anterior chamber. This I find easy, harmless, and elegant. Of course, I know that my colleague, Professor Haab, does all this with his giant magnet alone, and it may be perfectly harmless and successful in his experienced and skilful hands, but I must mention that surgeons of the first rank have published very bad results from its use in open wounds. I must ask your indulgence for explaining my own method, which is also based upon a long series of experiences.

Another satisfactory instrument is the middle-sized magnet of Schloesser-Edelmann, formerly attached to accumulators, now to the town current of 220 volts. With it I once extracted a splinter of 27 milligrammes, which had been for five months embedded in the retina and had already induced siderosis of the globe. The result was good and permanent.

Thirdly, Haab's giant magnet, a beneficent invention, has considerably increased the number of curable cases. My own giant magnet is more powerful than Haab's pattern: with it I have been able to extract the smallest splinters from the retina, which we so often find in casualties among our fifty thousand iron workers in Berlin. These small splinters are much more difficult to deal with than the lumps of iron, such as are found in the eyes of potato-hackers, and sometimes also in those of workmen. With this magnet I have very often extracted from the retina splinters which weighed only 2 milligrammes, 1 milligramme, or even ½ milligramme. With it, too, I have found no difficulty in bringing the splinter through the iris, if it was too much entangled in the tissues to bring it round the pupillary margin into the anterior chamber. Generally, no trace of this remains visible, even with a magnifying glass. So far, I have never had to perforate the iris to make a way for the splinter. All this proves that the strength of my pattern is sufficient. My friend, Dòlivo-Dobrowolsky, the author of the transmission of electric force from the Falls of the Rhine to Frankfurt, has lately devised and constructed

for me a new giant magnet, which is the same size but seems to be even more powerful.

Volkmann's giant magnet was tested by my assistant, Dr. Fehr, in the difficult case of a tiny splinter in the vitreous, but proved unsatisfactory, because the instrument after some minutes became so hot that the patient could not support it.

I will not enter now into the questions whether Haab's magnet is generally preferable or in which cases, for this would require much material, long observation, and more time than is conceded to me for discussion. In fresh cases with open wound I prefer a hand magnet. In old cases of retinal or vitreous splinters I have generally during late years used the giant. I cannot say that I did not sometimes regret it when the pulling of a not wholly aseptic splinter through the whole of the vitreous caused a serious irido-cyclitis, which perhaps could have been avoided by section and short extraction, or when, by firm and dense adhesion of the splinter to the retina, the giant magnet caused a later detachment. Of course, if the giant could not possibly bring forward the splinter, I did not, as a gentleman has lately published, give operation up entirely until enucleation became urgent, but I made a section, either on the edge of the cornea, in order to introduce the curved needle of the hand magnet between the already opaque lens and the ciliary body and secured the splinter, or in some instances I made my old meridional section and saved the eye.

Finally, I come to statistics. These cannot be compared with cataract statistics, for all depends upon the character of the material, and the cases which I get are very difficult to deal with, for fresh ones are in the minority, while I receive old ones which have not been attempted for want of diagnosis or fear of responsibility, and others which have been attempted unsuccessfully. Not only do they come from Berlin and from other parts of Germany but also very often from abroad. I will not criticise the published statistics, but will try to avoid the errors which I find in some of them.

First, we must try to separate clearly the cases behind the crystalline—that is, in the vitreous and retina—from those in the lens, anterior chamber, and cornea. The latter group is by no means always free from danger, but it is less and entirely different from that in the former group, which I intend to discuss alone. Secondly, we must not leave out the cases in which the splinter, notwithstanding our interference, remained in the eyeball—these we must count as losses. If a recent author has left the splinter in the eye in forty-five cases out of a hundred and fifty, and yet has counted them as successes, then is he mistaken: they are losses to be added to

his others. Thirdly, we must try to keep the cases under observation, in order to see if there be a permanent result with regard to vision. We discharged a patient with fair vision some weeks after operation, but some weeks or months later vision had been replaced by blindness, the result of detachment of the retina. This occurs sometimes, but rarely, even after classical operations, both after the application of the hand magnet through sclerotic section, and of the giant magnet without sclerotic section. But the surgical triumph of extraction is not equal to the practical use of this operation, which we like to learn as well as possible.

I now conclude with a short abstract of my own statistics for the last eight years, 1896 to 1903 inclusive. Among 3,018 clinical patients there were 64 cases of iron splinters in the retina or the vitreous operated upon by means of the electro-magnet. Of these 64 cases, 36 cases, or 56 per cent., had good and permanent vision: two-thirds of these successful cases, or 23 out of 36, obtained very good vision, from $\frac{1}{2}$–1; 9 were from the vitreous, 27 from the retina, 22 were fresh cases, 14 were old. Of these 36 successful cases about one-third were operated upon with the hand magnet alone; two-thirds with the giant and the hand magnet together (exactly 13 *versus* 23).

Secondly, in 6 cases out of 64, or in 9 per cent., only the form of the globe was saved, but vision was lost.

Thirdly, in 22 cases out of 64, or in $34\frac{1}{2}$ per cent., excision followed the extraction of the splinter: in the large majority of these cases either the splinter was over large, or cyclitis or sepsis had already developed when the patient came for treatment. In one case a very severe after-bleeding with cyclitis were the cause of excision, and in another case retinal detachment followed five months after the extraction of the splinter with irritation, and rendered excision necessary. In 4 cases only of old splinter in the fundus (a small number in my opinion) was I unable to carry out extraction.[1] Two of them were sent or lent to me by their surgeons, in order that the giant magnet might be tried in their cases: they were returned with undamaged eyes. The third case is not yet given up entirely and will be operated upon later on. The fourth case, one of five years' standing, came from Central America, and the eye had to be excised. If we add these four cases to the losses the latter will be increased to 38 per cent., and the good results correspondingly decreased to 53 per cent.[2] Thus we

[1] I can add some other cases of trial with giant magnet, two of which were recognised as double perforation of the globe. In two others no splinter was found, in spite of Roentgen rays and sideroscopy.

[2] Haab published 33%–40% of vision among the more difficult cases.

see that in these cases of serious injury to the eyeball, in which a splinter of iron, sometimes of very infective character, had penetrated deep into the globe, vitreous, or retina, and of which only a certain proportion came immediately or shortly afterwards to the surgeon, 53 per cent. obtained real benefit from magnet-operations, *viz.* :—preservation of sight and two-thirds of these very good sight. This is a result which awaits the attention of every conscientious and benevolent eye surgeon, a result which will be still better as instruments and methods improve, and also as greater care is given to our poor injured workmen.

I cannot finish without lamenting the recent and premature death of our British colleague M'Keown, to whom science is so much indebted for the promotion of this important surgical operation.

ON THE CORRECT USE OF THE GIANT MAGNET.

BY

PROFESSOR O. HAAB,

OF ZÜRICH, SWITZERLAND.

Introduction.—If we want to remove a chip of iron from the eye, successfully and without damage, it does not suffice to bring the eye near a giant magnet, but we must apply this valuable instrument in the right way.

Knowing that in many places the magnet operation is not always performed correctly, I wish to give here a short description of the system on which I proceed, this system being the result of my experience, derived from more than two hundred operations performed by means of the big magnet during the last twelve years. For, in fact, practice is the best guide we can follow in this matter.

Requisites of the magnet.—First of all, I will define the right construction of a magnet for eye-surgery. The big magnets used by the physicists in their laboratories are not the right instruments for removing chips of iron from the eye, although I performed my first operations by their help. It is evident that for our purpose the magnetic power of the instrument ought to be concentrated on a spot which is as convenient as possible for drawing out the foreign body. The big magnets which physicists use are built for other purposes. The ophthalmic surgeon needs the concentration of the magnetic power, in order to guide the foreign body by force along the right path it has to take from the vitreous chamber through the

anterior chamber and the cornea. For, above all things, we must avoid drawing the fragment into the ciliary body, from whence it is extremely difficult to extract it. The foreign body has to take its course through the space between the ciliary body and the lens by sliding round the latter. Circumstances being favourable, it pierces with great velocity the suspensory ligament and appears in the posterior chamber, projecting the iris forward.

But the longer the end, the more its magnetic power decreases. The deeper a piece of steel has penetrated into the eye towards its background, the stronger must the magnet be in order to withdraw this foreign body, lodged perhaps 20 mm. to 25 mm. behind the anterior surface of the cornea; but by unscrewing the point we can raise the magnetic power of the magnet considerably.

Any foreign body lodged in the retina or in any other part of the eye, should be loosened by attracting it in jerks. For this purpose we have to cut off the current suddenly when at its full strength; then reopen as suddenly; and we must repeat this quick attracting process several times. The magnet must, therefore, be so constructed as to give to the surgeon the utmost facility in closing and opening the current, which should be done by himself, not by an assistant. It is important that the surgeon should control the current himself, for he must act just at the right moment and without delay. Hence I have added a switch to my instrument. Being at the lower part of it, it allows the operator to put the magnet out of action instantaneously, and to close the current promptly with the *foot*. I attach great importance to this switch, which by spring-power opens the current whilst not used automatically. This affords another advantage in removing the danger of over-heating and destroying the magnet through too long an action of the current if, for instance, one forgets to cut it off after an operation.

The possibility of thus readily and suddenly putting the magnetic power in action, and of withdrawing it, compensates pretty well for the want of mobility of the giant magnet. Meyrowitz, Volkmann, and others have made great efforts to render this instrument as movable as possible, so that it may quickly be approached to the eye in any direction and removed as easily. It is my opinion that a giant magnet, being too heavy, is always insufficiently movable, even if suspended with the greatest skilfulness.

Moreover, we have to consider that the head of the patient, as well as the eye to be operated upon, is easily movable. It is obviovsly much more simple to move the eye or the head of the patient than a magnet weighing two hundred pounds. Therefore, I do not like the patient to lie on the operating table whilst the magnet hangs up above his face, as Gayet, Mayweg, and

Volkmann have recommended. In the beginning of the operation, very often the quickest pushing back of the patient's head from the magnet is indispensable, otherwise the foreign body becomes entangled in the iris. At this critical moment the patient, feeling pain, generally helps the surgeon by drawing back his eye from the magnet; but, if he is lying on the operating table, he is prevented from doing so. For the same reason I cannot approve of the support for the patient's chin fitted to Edelmann-Schlösser's new magnet.

Consequently, my magnet is arranged in a horizontal position. The patient, sitting on a revolving chair, places his elbows on a board fitted on to the frame of the instrument. The magnet, capable of being turned like a weather-cock, can be used at both ends. One of them, sharper than the other, is intended for the extraction of metallic particles from the anterior chamber.

The larger the piece of steel, the more vigorously is it attracted by the magnet. As in such a case the interior of the injured eye might be damaged by the too hasty attraction of the foreign body, it is advisable to diminish the strength of the magnet either by inserting resistance into the current, or by withdrawing the injured eye to a greater distance from the instrument. This is much more convenient than a rheostat, which now I never use. Again, the force of the attraction can be diminished either by giving a longer point to the magnet, or by making use of W. Lang's cable.[1] Of late I have ordered my magnet to be built with different tips, which can easily be changed.

Considering all the above-mentioned qualities necessary in a good giant magnet for oculists, I venture to say that the instruments constructed and recommended lately by Volkmann, Edelmann-Schlösser, and Hirschberg, although very strong, hardly produce more effect than mine, described first in Deutschmann's *Beiträgen zur Augenheilkunde*, Vol. II, 1893, and not long ago in my *Atlas and Treatise on Eye Operations*.[2] Although I have not used them, I am afraid the three instruments mentioned do not give a comprehensive view of the field of operation, as the end of the magnet does not stand out sufficiently from the coil. Moreover, Volkmann's magnet is said to get very hot in a short time. I am convinced that all these three instruments are very strong; that gives me great satisfaction, as I have always emphasized the fact that the eye magnet should be as strong as possible. This principle turned out to be a

1. Lang, W.—A Note on the Use of Haab's Magnet. *Roy. Lond. Ophth. Hosp. Rep.*, Vol. XV, 1903. For abstract see THE OPHTHALMOSCOPE, Vol. I, p. 18.
2. The instrument is made by Rieter & Co, Winterthur, Switzerland, represented in London by D. Santoni & Co., 28, Ely Place, Holborn Circus, E.C.

correct one, so I approve emphatically of the large size of Schlösser's new magnet, which was formerly too small. Another drawback of these three magnets is the impossibility of closing their current by means of the foot.

Use of the giant magnet. — For ten years I have opposed the view that the magnet operation was a very simple affair, and that it was sufficient to bring the injured eye near the magnet to get the foreign body simply torn out by it. In the second paper about my magnet method I drew attention to the fact that the intruding substance, on being attracted forwards, does not follow the way of entrance but the lines of power of the magnet. Hence, it slides almost regularly around the lens, and appears somewhere behind the iris. I have also always warned operators not to pull the iron particle into the ciliary body, and on every occasion I have declared iridectomy was perfectly superfluous, on condition that the operation was performed in the right way. By all this I insisted upon the difficulty and delicacy of this operation.

Therefore, of course, the surgeon has to watch the eye exposed to the magnet, and to survey it during the whole operation, being careful always to have the tip of the magnet opposite the right point in the eye. Consequently, a full view of the eye is necessary, and a correct point to the instrument indispensable; that is to say, the pointed end of the magnet must stand out sufficiently from the coil to afford the surgeon a free survey of the field of operation.

As a speedy extraction of the foreign body is most important, it is not advisable to lose time in examining the eye by *x*-rays and the magnetic needle (sideroscope). If necessary that can be done afterwards. In the majority of cases we need not trouble about the resting-place of the foreign body, although it is most important to look for the wound of entrance, and to make out its size, this notifying the largeness of the particle. Furthermore, we have to study the path taken by the foreign body in the globe, for if we conclude that it is lodged in the ciliary body we have to be especially careful in extracting it.

The greater number of iron particles enter the eye through the cornea and the scleral border, and in one-half of my two hundred cases, the lens was injured. We are often not able, therefore, to distinguish the foreign body in the vitreous chamber or the retina; but in all cases where the lens is clear, an examination of these parts of the eye by the ophthalmoscope is useful, in order to find out the size and the situation of the foreign body. Furthermore, thorough preparation of the eye by means of cocaine, atropine, and, if necessary, adrenaline, is most important. An enlarged pupil is very helpful when withdrawing the foreign body into the anterior chamber.

After having carefully cleansed the tip of the magnet, as well as the wounded eye and the skin around it, and after having put away our watches, we provide good natural or artificial light and begin the operation. The surgeon standing close to the side of the instrument, clasps the head of the patient with both hands, holding his eyelids with the thumbs, and bringing the head into the right position. If the patient is nervous, and therefore does not approach his eye to the magnet, the surgeon should stand behind him and push his head gently towards the instrument. By bending forward he can quite well survey the injured eye.

In the majority of cases the best way back for the foreign body lies through the anterior chamber, and in all these cases the patient's eye should, *as a rule*, be brought in such a position with regard to the magnet that its point is *opposite the middle of the cornea.* By doing so we prevent the foreign body, as far as possible, from getting entangled in the ciliary region. If we suppose the foreign body to be small, as in the majority of cases it is, the cornea must nearly touch the magnet terminal, and we have to close the current in its full strength at once. If a large particle is expected, the patient's head may remain at a certain distance from the instrument.

As soon as the eye is in the right position, the surgeon closes the current with his foot. At this moment the patient often draws back his head suddenly, and it is better to let him do so, because probably we have already pulled the foreign body behind the iris. It would be bad to continue now the extraction and to let the metallic particle penetrate into the posterior surface of the iris. We cut off the current and bring the eye into a new position, according to the spot where the foreign body makes the iris bulge forward. If it lies behind the lower part of the iris, we bid the patient look downward, and approach the upper part of the cornea to the magnet; then we close the current again, and, in the great majority of cases, we see the particle slip into the anterior chamber through the pupil. Sometimes it is a little difficult to get it loose and bring it into the anterior chamber. Repeated attraction in the right direction, obliquely through the pupil, is necessary, even though pulling the iris considerably towards the magnet, does no harm.

If we cannot extract the fragment from behind the iris, we put the patient on the operating table and remove the particle by introducing the magnetic probe of the small magnet (Hirschberg's, Fröhlich's, Snell's, etc.) through an incision of the cornea behind the iris, or by applying Lang's method. "A steel spatula made for me by Weiss, in the form of a spud, but with a rounded end," says Lang, "is passed between the lips of the corneal section across the anterior chamber, through the pupil and between the iris

and the anterior lens capsule. An assistant now connects the base of the spatula, by means of a few strands of soft iron wire twisted into a rope, with Haab's magnet, which is brought close to the patient's eye ; the spatula is withdrawn with the foreign body adhering to its end" (*loc. cit.*).

When we have brought the metallic particle by the regular proceeding into the anterior chamber, we remove it completely either by the help of the small magnet, or (as I generally do) by the large instrument. A fair-sized incision is made in the cornea, preferably either with a broad needle or with a cataract knife, taking good care not to let the aqueous humour flow out, as it is important for the fragment to be able to move freely, if possible. The sharp point of the big magnet is then brought close to the incision, and, if necessary, is pressed into it a short distance. Frequently the foreign body glides quickly out of the incision. It often occurs that the splinter has fallen into the lower part of the anterior chamber, in which case, of course, it should be raised behind the middle portion of the cornea, and drawn from thence towards the incision. The patient's head should be then so moved that the point of the magnet passes in a centrifugal direction over the incision in the cornea. So the foreign body often finds it way to the incision and escapes ; should it not do so, the point may be pressed somewhat into the wound. But if the foreign body slips peripherally into a position between the incision and the corneal margin, it must be guided back to the centre of the cornea, and the manœuvre repeated.

It is almost needless to say that if the wound of entrance of the foreign body is situated favourably in the cornea, it can be used for extraction. Even after several days I have extracted foreign bodies through the entrance wound.

This last portion of the operation sometimes presents difficulty and always requires care, but may be most successfully performed by means of the giant magnet. When the splinter is of a large size and has especially sharp edges, which might damage the yet uninjured lens in its movement to and fro in the anterior chamber, it is better to let the patient lie on the operating table, and to withdraw the foreign body cautiously with the small magnet or by means of Lang's spatula.

Iridectomy should be performed as rarely as possible. Indeed, I have never done it myself. Should the iris fall into the wound during the process of extracting the particle from the anterior chamber it must be replaced.

If the eye is inflamed by the foreign body (hypopyon), a little rod of iodoform should be inserted in the anterior chamber according to the method already described by me.[2]

2. Haab.—*Atlas und Grundriss der Lehre vom den Augenoperationen*, 1904. p. 95.

In the far less numerous cases in which the fragment has pierced the sclera at a distance from the cornea, the first question always is, whether it should be extracted through the original wound or through the anterior chamber. If the wound is quite fresh it may be possible to draw the foreign body back through it by means of the giant magnet, without its being necessary to push the point of the instrument into the wound, which would increase the injury to the vitreous; for the same purpose the wound in the sclera might be enlarged or a fresh one be made. In this respect the big magnet is preferable to the small one. Even a slight opening of the wound in the sclera with the sharp point of the big magnet would not be a serious risk, if carefully done.

Yet as the particle is not visible in the interior of the eye when the extraction takes place through the sclera and the operation is hence necessarily carried on somewhat in the dark, it is advisable, as far as possible—and always with small fragments—to withdraw the foreign body through the anterior chamber. Hence, the important advantage of the big magnet consists in the avoidance of injury to the vitreous. It is evident that an incision made in the cornea is of much less consequence than one in the sclera.

In general, as often as possible, I extract the chip of iron through the anterior chamber, because, as I have stated, that mode of procedure avoids injury to the vitreous.

If a steel fragment is caught and retained in the interior of the eye—as, for instance, in the retina, in a hæmorrhage or an exudation—and does not immediately respond to the magnetic force, the operation should not be abandoned too soon. By repeatedly opening and closing the current, the fragment must be attracted in jerks, and should always be guided first towards the centre of the cornea. If it does not make its appearance thus, an attempt should be made to draw it sideways towards the equator and thence into the anterior chamber. Great care should be taken that these continued efforts do not draw the fragment into the ciliary body. Should it be noticed that the patient is not holding his eye in the right position or has altered it in any way, the current must be opened at once and the eye brought into the correct position. If the operation is a long one, cocaine must be dropped into the eye at intervals.

If these efforts be at first unsuccessful, the operation must be repeated the next day. I have sometimes been rewarded by success only after several days.

In difficult cases it may be advisable to search for the metallic particle with the sideroscope and the Röntgen rays. The possibility of the particle having penetrated the back wall of the eyeball and that it may be lying outside the eye must be taken into consideration.

If the foreign body has not been withdrawn from the eye by the proper application of the big magnet, it is almost useless to attempt its extraction with the small magnet, especially when there is any uncertainty as to the position of the fragment.

There is, of course, always a much greater probability of a successful operation when the accident is of recent date. It is generally better to leave undisturbed metallic foreign bodies which have been long seated in the interior of the eye.

These remarks do not exhaust the subject—it cannot be fully treated here for want of space—but they state a few essential rules to be observed in magnet operations. The results of my further experience made during the last few years are recorded in the *Zeitschrift für Augenheilkunde* (Vol. VIII, 1902) and in my *Atlas und Grundriss der Lehre von den Augenoperationen*, already referred to.

THE ELECTRO-MAGNET IN OPHTHALMIC SURGERY.

BY

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"The introduction of the electro-magnet into ophthalmic surgery has proved of enormous benefit, and by its means many eyes have been saved which would otherwise have been lost."

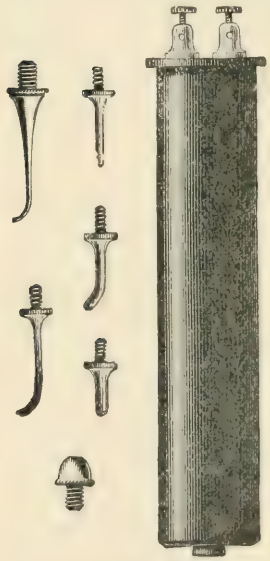
This extract is taken from a recent excellent text-book * on diseases of the eye, and no one who has had experience of the electro-magnet will question that it states what is now a truism. In my first paper in 1881 I wrote "there can be little doubt that it is a proceeding of the highest value and destined to preserve vision to many eyes, whilst in others it may at least secure a presentable organ and one free from irritation." Looking now at the important and well-recognised position the electro-magnet occupies in the armamentarium of the ophthalmic surgeon, it is interesting to note that a criticism of my book on *The Electro-Magnet in Ophthalmic Surgery*, published in 1883, was "that the subject is too limited to deserve a separate volume."

My experiments with magnets and then with electro-magnets commenced twenty-six years ago, and my first instance in which an electro-magnet was used was in 1880. The electro-magnet then employed was not one capable of being introduced into the eye. The fragment was clinging to the inner sclerotic wall, and "after

*Lawson.—*Diseases and Injuries of the Eye.*

the electro-magnet had been applied a little time the foreign body was found to be fairly in the wound, which had been slightly enlarged, and it was readily removed therefrom with a fine pair of forceps." The resulting vision was 6/6. This was a simple case compared with instances of foreign bodies in the vitreous and in the retina which have in succeeding years come under operation.

Further experimentation resulted in the electro-magnet being devised which was described by me in 1881 (1), or just 24 years ago now at the time of writing. It consisted of a core of soft iron, covered with copper wire, one end receiving the battery connections whilst the other was tapped, and into it a needle could be screwed which fitted closely on the extremity of the magnet by a projecting cap. "Several of these needles are provided, some longer or shorter, and straight or curved at the end." It was employed attached to a quart bichromate battery. It had been in use for some time previously.



HALF ACTUAL SIZE.

About the same period Bradford in America described an electro-magnet on the same principle.

This tapping of one end of the magnet so as to permit of any size or shape of needle the case might require being attached, was, in my opinion, a distinct advance on anything I then knew or afterwards learnt of electro-magnets for ophthalmic use. Hirschberg's magnet (2) which he had employed prior to the publication of my paper, was tapered at each pole, and thus only admitted of the use of the two fixed extremities for introduction into the eye, nor was it so powerful as the one I described.

The electro-magnet which has, since 1881, borne my name, has varied little from the original model except in superior workmanship. The maker has had directions to issue no magnet which, with an end piece of 1 inch long and 2 mm. thick, and

(1) Made by Preston, Barkerpool, Sheffield.

(2) At Prof. Hirschberg's request I sent him my magnet for his inspection immediately after my original paper appeared. In a subsequent article he said he found it very powerful. Later, Hirschberg adopted a model with a whole arsenal of both bent and straight end pieces—long and short, thick and thin—at the same time asserting that he had no grounds for dissatisfaction with his own instrument.

attached to a quart bichromate battery,* was unable to raise and to hold suspended a weight of at least 7 ozs. Usually the strength has been in excess of this standard.

So well established has the electro-magnet become in ophthalmic surgery that for many years I have ceased to publish any series of cases. I have, however, at different times recorded instances possessing features of special interest: such, for example, as those in which the electro-magnet enabled me to remove fragments from the retina with excellent visual results. I purpose, however, to take the opportunity now afforded, and to review the subject briefly. My experience is based on fully 300 instances in which the electro-magnet has been employed, and as the field is a wide one, it will be evident that it is impossible to treat it at all completely within the limits of the space at my disposal.

It is in exceptional cases only that the electro-magnet is of service for splinters in the cornea. Among these instances may be mentioned those deeply embedded nearer the posterior than the anterior surface of the cornea. Attempts at removal by ordinary methods will end in opening the anterior chamber and, possibly, the passage of the foreign body inwards. Such cases, however, can be treated successfully by passing a keratome through the cornea and using it as a background on which to work with a needle or spatula until the foreign body is exposed, and it is then that the point of the electro-magnet will more readily remove the splinter than other means. This is shown by the following instance, in which a small piece of steel was embedded in the cornea near the sclero-corneal junction. Previous efforts to remove it had resulted in the opening of the anterior chamber. A narrow iridectomy knife was passed through the cornea near the periphery and having the cornea in front containing the fragment, served as a base to work upon for its extraction, and avoided the danger of pushing it into the anterior chamber. The corneal tissue was opened up by a broad needle in front of the piece of steel, and then it was immediately removed with the electro-magnet. The situation of the chip was so near the anterior chamber, that, in dissecting the cornea over it, the fragment moved about on the iridectomy knife. The operation was followed by slight iritis, which in the course of a few days subsided. V.=6/6.

From the anterior chamber and iris the electro-magnet will enable splinters to be removed, frequently with complete preservation of vision. The original wound may need to be enlarged or re-opened, or a fresh corneal incision may be necessary. A portion of iris, if the splinter is entangled, may also require excision. In these cases the electro-magnet often renders excellent service in diagnosis, for if the magnet be

* When the street current supply is available it can, of course, be used.

applied to the cornea with a short, thick end,* the nature of a foreign body is disclosed by its movement. This refers also to splinters in or on the lens capsule. A fragment may on the approach of the magnet spring forward from the iris or lens capsule against the cornea, and I have in many instances guided a splinter with the magnet to the most suitable situation for its extraction through a corneal incision. The following are illustrative cases :—

A patient was injured in the right eye. He was not seen until four months after the accident. There was then in the centre of the anterior capsule a little yellowish mark which suggested the likelihood of a very minute foreign body, being located there. A small scar in the cornea, rather to the inner side of the centre, was discovered. The pupil was then dilated with atropine, and cocaine was instilled, and, with a view to confirming the diagnosis, the electro-magnet was held in close contact with the cornea. The mark on the capsule was noticed gradually to become darker. Suddenly a minute fragment flew to the posterior surface of the cornea. When, however, the patient was placed on the couch for operation the fragment had disappeared, nor could it be discovered in the dark room with focal illumination. He was again placed on the couch and on the magnet being advanced to the cornea the splinter again sprang forward and it was then guided to a convenient situation on the iris for removal, and the magnet was withdrawn. A small corneal wound was next made on the outer side, the fine point of the electro-magnet was introduced, and the foreign body extracted. Later, the lens became opaque, but was removed with a satisfactory result.

A man, aged 33, nine years before being seen was hit on the right eye by a piece of steel. Under treatment at a hospital the eye became quiet and remained so until a few days before coming to me. Then he was suffering great pain and the surface of the eye was reddened. V. = p. l. Lying on the iris at its lower part was a dark body with an irregular-looking surface. The pupil was small and did not dilate to atropine ; it was filled with the remains of opaque lens. It was thought that the dark body on the iris was a fragment of steel surrounded by old exudation. The diagnosis was at once made positive, for, on advancing the electro-magnet to the cornea, the foreign body followed the course of the magnet in all directions. It was finally deposited on the iris at a convenient place for removal. This was effected by the magnet through a small corneal incision

* With the button end piece (*vide* engraving, page 66) which is suitable for use in this manner, my electro-magnet supports a weight equal to $2\frac{1}{4}$ pounds or, if the magnet is employed without any end piece, $3\frac{1}{2}$ pounds.

on the outer and lower side. The patient made an excellent recovery with vision as before, *viz.*, light perception.

J.M. was seen twenty hours after the accident. The fragment was observed embedded in the iris, close to the outer margin of the pupil. On applying the magnet to the cornea, the foreign body at once sprang forward, dragging the iris with it. A small corneal incision was then made, and the fragment removed with the small point of the magnet. Resulting V. = 6/6.

In another case a fragment was embedded in the iris above and to the outer side ; it was covered with exudation and there was hypopyon. On approaching the magnet, movements showed the nature of the body. It was removed through a corneal opening by the electro-magnet.

The aid to diagnosis is clearly shown by these cases, but a further advantage is illustrated, *viz.*, that of guiding, in some instances, by the electro-magnet, a splinter from one part to another, and then, on the withdrawal of the magnet allowing it to drop on the iris again at a situation more suitable for its extraction.

The majority of cases, as well as the most serious, that require the aid of the electro-magnet are those in which foreign bodies are situated in the posterior part of the eyeball.* In many the nature of the injuries, size and situation of the wounds, are such that, apart from the location of the foreign body, the prospect of recovery of sight is very little. The eyeball, again, may have become seriously disorganized, and past recovery, before an opportunity for operation is afforded. Fortunately, however, in others the extraction of the splinter results in securing good vision.

Let us take those in the vitreous first. If the injury is recent and the foreign body be free in the vitreous, as a rule, its extraction will be effected without much difficulty by the electro-magnet. The success, as far as recovery of vision is concerned, will largely depend on the situation and size of the wound caused by the foreign body and the time intervening between the accident and the operation. The element of "time" is of the first consequence in vitreous cases. The prospect of

* In 140 cases the situation of the fragments, and the average weight of the same were as follows :—

In the Vitreous	there were	84,	the average weight being	gr. 2.82
In the Lens	do.	18,	„ „	gr. 1.59
In the Sclerotic	do.	3,	„ „	gr. .02
In the Retina	do	6,	„ „	gr. .36
In the Cornea	do.	10,	„ „	gr. .01
In the Conjunctiva	do.	5,	„ „	gr. .18
In the Ant. Chamber	do.	3,	„ „	gr. .13
In the Iris	do.	8,	„ „	gr. .44

Among those in the vitreous were such large pieces as the following. 1 each of gr. 36, 33, 22, 12, 11, 10, and 9.

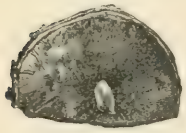
saving an eye will be inversely to the interval between the injury and the time when the electro-magnet is employed. Another point is whether the fragment was a clean one or not. The vitreous may be regarded as an excellent medium for the growth of micro-organisms. If the foreign body itself be not septic the prolapsed vitreous may be the starting-point of sepsis.

Leaving for the present the question of the route to be selected when operation with the electro-magnet is decided upon, it may be mentioned that as short and large an end should be employed as is consistent with the particular case, bearing in mind always that the power of attraction diminishes rapidly as the attachment is lessened in size or carried farther from the coil around the core. Given an electro-magnet such as I have described, attached to a battery in good working order, then failure to extract a foreign body from the vitreous should be very rare. Under certain conditions non-success will result. It is curious that the causes of failure with large magnets are placed under the same headings that I have been accustomed to do those for my magnet. They are the following :—

That the foreign body be : 1. Embedded in the coats of the eye, at the back part ; 2. or entangled in the ciliary region ; 3. or embedded in a mass of effusion.

As instances of failure I take these from my recorded cases.

(a) The patient was a middle-aged man. There was a large corneal wound in the right eye and the lens was opaque. The day following, the lens was removed through the original wound, which was enlarged for the purpose. The electro-magnet was introduced without result. Later, the eyeball was enucleated. The piece of steel was found embedded in the optic papilla, and projecting into the interior, and was visible at the point of section of the optic nerve. The condition is depicted in the wood-cut.



(b) G. B. ; whilst at work a piece of steel flew from his hammer into the left eye. He came to the Infirmary with a wound of the cornea and traumatic cataract. The softened lens was let out and the electro-magnet was introduced, but no foreign matter was detected. The eye continued painful, but he declined to submit to enucleation. Eighteen months later he consented and the eyeball was excised. The chip of steel was then found embedded in the outer side of the sclerotic at the back, quite beyond the reach of a magnet.

(c) J. W. aged 17 years. The splinter had passed through the edge of the cornea, iris, and lens of the left eye. The electro-magnet passed into the vitreous, "clicked" the fragment at the back of the eye, but did not extract it. The globe was enucleated ; at the time of section the scissors pressed the splinter out of the optic

nerve, and it was removed from the orbit with the electro-magnet. The fragment weighed 1·01 grains.

It is necessary, when the use of the magnet is decided upon, that every care should be taken in the preparation of the eye for operation and in the sterilisation of the instruments. The eye should be bathed with sublimate solution and all instruments to be used should be sterilised in boiling water. The end of the magnet which has been selected, and which may therefore need to be inserted into the interior of the globe, must be carefully boiled.

When dealing with foreign bodies in the posterior part of the globe an important matter for consideration is the route by which the magnet is to be introduced into the eye. In a recent case with unclosed wound in the sclerotic this will usually be selected, even if the original wound needs enlarging. There are instances also when the wound of entrance has closed that it will still be the wisest plan to enter the magnet through the sclerotic when the lens is uninjured. It is a matter, then, of importance as to the best way of incising the sclerotic for the passage of the point of the magnet. The exact situation must, of course, be determined for each individual case, but care, in all, must be taken to avoid the ciliary region. Experience has taught me that the best procedure is to separate the conjunctiva for some little distance from the intended site for the sclerotic puncture, and then after bleeding has ceased, to introduce the knife in such a way as to make the incision in a line from the cornea towards the equator. As a result of experience in many cases I find it is often convenient to select a site between the external and inferior recti muscles, but each case will determine the best situation. The sclerotic wound must be sufficiently large, not only to enable the point of the magnet to be introduced, but to prevent, as far as possible, the stripping off of the fragment at the edges of the wound. It may be necessary to add to this linear wound a cross cut at its posterior extremity. After the removal of the foreign body the closure of the separated conjunctiva by sutures will bring into close apposition the edges of the deeper sclerotic wound. The tendency of all sclerotic wounds to become depressed and to lead to softening of the globe is well known. In my opinion, this is a frequent cause of the failure to obtain, or to retain, good results after magnet operations. This remark applies to the wounds, occasioned by the fragments, which are frequently jagged, as well as, but in a less degree, to the intentional ones made for their removal. A sclerotic wound means injury also to the choroid and retina, and we know from the interesting investigations of Parsons that in the healing of sclerotic wounds the injurious effects are observed in the underlying tissues for some distance around.

Experience, therefore, has led me to believe that in many instances the anterior route should be selected. This applies especially to cases in which the foreign body has passed through the lens and rendered it more or less opaque. After a corneal section as much of the softened lens as possible should be removed and the point of the magnet introduced into the vitreous. The disturbance of the vitreous will often be less, as will the danger of detached retina, than if the sclerotic route had been chosen.

Splinters of steel or iron in the retina call for removal by the magnet. Formerly I held, with others, that foreign bodies in the retina were frequently tolerated in such a way that the eye not only remained quiescent but that they caused so little disturbance that vision was retained—the sight often being excellent. Some time ago I recorded several instances of such tolerance of foreign bodies in the background of the eye. At one time or another more than a dozen similar cases have come under my notice. I was therefore disinclined to use the magnet or to advise the patient to submit to the risks attendant on an operation when there appeared from one's then experience that there was a fair chance of retaining vision if the foreign body was uninterfered with. I have, however, been led to abandon this *laissez-faire* practice for two reasons: 1st.—I have seen several instances in which this hopeful prospect has not been fulfilled and the eyes have been lost, whilst in others the foreign body has subsequently become detached and has needed extraction by the magnet. 2nd. My experience of the extraction of fragments from the retina by the magnet has been so satisfactory that I am much more disposed to advise immediate operation. I have, I think, removed eight splinters from the retina. Five corresponded exactly to those in which formerly no operation was performed. The fragment was diagnosed by the ophthalmoscope and its exact situation located. Three were operated on immediately. In each of these, the end of the magnet was advanced to the position where the foreign body was situated, and the piece of steel extracted. It is a convenience, especially when the foreign body has been exactly located, to advance the point of the magnet to the situation before the current is turned on.

Two of the cases yielded excellent results. One has been under observation at intervals up to the present time—that is for six years—and the resulting vision, 6/5, is still retained. I give here brief records of these cases.

On October 24, 1898, Mr. H. B. M. was driving a wedge with a hammer, when a splinter flew off and struck the right eye, but it was not until November 5th that he came to me. Examination then disclosed a small linear wound at the periphery of the cornea, at its outer edge, corresponding to about the centre of the

palpebral opening. Beneath this corneal scar was a small opening in the iris at the periphery, which at once suggested the probability of the foreign body having penetrated and being located in the globe. V.=6/6. The media were clear, but in the fundus towards the periphery, on the outer side, just above the meridian line, a mass of whitish effusion was noticed, in size equal to about two diameters of the optic disc. There was only at one point anything resembling the glistening noticeable when a metallic body is embedded in the retina, and this was very trifling. The situation of the effusion corresponded exactly to the line a foreign body passing along the track, indicated by the corneal scar and the wound in the iris, would take, and no doubt was left in my mind that the fragment of steel was actually embedded in the retina, and coated over with this whitish effusion.

His consent was obtained and the operation was performed four days later. The site selected for incising the sclerotic and introducing the electro-magnet was between the external and inferior recti ; indeed, a little external to the latter appeared the best situation from which to advance the point of the electro-magnet to the location of the foreign body. Cocaine was therefore instilled, and the conjunctiva separated from a point in front of the intended puncture back towards the equator. After bleeding was stopped, the sclerotic was incised, and the point of the electro-magnet introduced and advanced to the situation of the foreign body. A second introduction was necessary, but then the piece of steel was extracted ; it weighed 0·16 grain. One surface was coated white, and this demonstrated, if further testimony were needed, the fact that it had been situated as diagnosed, one surface lying in the retina and the other coated over with effusion. The conjunctiva was united by sutures. On December 16th, V. = 6/5, and it has remained so to this day.

In the second case the right eye was injured. The splinter of steel had entered at the sclero-corneal junction at the inner side (not outer) and there was a hole in the iris through which it had passed, and the track the foreign body had taken was made out by the opacity it had caused at the periphery of the lens. Examination with the ophthalmoscope disclosed the fragment of metal fixed in the retina in the lower and outer quadrant. The glistening of the steel was distinct, but it was surrounded and partially covered by whitish exudation. The vitreous otherwise was but little disturbed, and V. = about fingers. The sclerotic was incised between the internal and inferior recti, and the electro-magnet was advanced to the situation of the foreign body. On withdrawing it the fragment was not attached. Again the electro-magnet was passed into the eye and a "click" was immediately heard but with a like result. A careful

search was made round the wound to ascertain if the splinter had been peeled off when the magnet had been withdrawn, but it could not be found. A third time the electro-magnet was advanced to the situation of the foreign body; a "click" was again heard, and this time on withdrawing the instrument the piece of metal was found adhering to it. The exact situation of the fragment in the retina had been ascertained but the splinter was clearly too firmly fixed either in the retina or glued by adhesions of lymph, to be detached at the first two occasions it was brought into contact with the electro-magnet. The opacity in the lens remained unaltered and vision = 6/24.

A most important matter is the diagnosis and the localisation of the fragment. The history given by the patient is often misleading and the difficulty is increased when, as sometimes happens, the point of entrance of the foreign body is no longer distinguishable. One is, however, frequently able to form a fairly correct opinion as to whether or not a fragment has penetrated and is located inside the eyeball. The diagnosis is assisted by the history of the accident, from chipping for instance, and also by the situation and character of the wound. I am satisfied that experience in a large number of accidents does enable one to say with something like precision whether a foreign body is inside the eye or not. In the anterior chamber, in the iris and lens, usually a splinter is visible and there is, as a rule, not much difficulty in diagnosis. The assistance rendered to diagnosis by bringing the magnet into close apposition with the eye has been already mentioned.

In the posterior portion of the eyeball the ophthalmoscope will often be of service, and it becomes the most exact means we have for the localisation of the foreign body. A splinter in the vitreous, already recognised by the ophthalmoscope, may on the approach of the magnet to the sclerotic be observed to move towards the part where the magnet is placed.

The localisation of the fragment, when practicable, is most important, and the visual results are likely to be much better than in those cases in which the magnet is used where, although a foreign body be in the eye, its exact position has not been determined. The instances of removal of foreign bodies from the retina are brilliant examples. In these the precise situation of the fragment was determined by the ophthalmoscope, and the point of the electro-magnet was advanced to this exact spot.

The *x*-rays have rendered, in many instances, material assistance. One of my cases was amongst the earliest recorded. A foreign body had been previously made out surrounded by lymph in the upper part of the vitreous. Dr. Mackenzie Davidson, who examined the case with the *x*-rays "localised a fragment of steel, apparently needle-shaped, in the vitreous. It

is about 7 mm. or 8 mm. in length, and is situated obliquely. It is evidently embedded in the white mass visible upwards in the vitreous." I subsequently extracted the fragment through a scleral incision, and found it, as the skiagram had indicated, "needle-shaped" and about the thickness of a sewing needle. It weighed 0.56 gr., and measured 9 mm. in length.

The recorded instances are very numerous which testify to the value of the *x*-rays for localising splinters in the posterior part of the eye. It requires, however, a skilled operator to use this means successfully, and unfortunately such a one is not always available at the required moment. The failure to detect a foreign body with the *x*-rays should not always be held to exclude its presence.

It is not my purpose to discuss here whether or not a large magnet has advantages over a small one, my object being rather to set forth the value of the hand magnet. It is sufficient, therefore, for me to quote the following passage from MacCallan's excellent article (†).

"Until I completed these tables I was of opinion from practical experience of the use of the two magnets that the Haab's magnet results would entirely overwhelm those of the small magnet. This, however, is not the case."

An immense difference between the two is at once evident. One is easily handled, is portable, and comparatively inexpensive. It can, therefore, be readily obtained and be widely employed. The extensive use of the hand magnet is testified to by the large number one maker alone has supplied. The large magnet is very costly, not portable—one account giving the weight as 600 lbs.—and it must, therefore, be necessarily possessed chiefly or only by hospitals, and of these, almost entirely by those situated in large industrial centres. For these reasons, it is my opinion that the value of the hand magnet should always be set forth whatever be the views of those employing the large magnet.

REFERENCES.

Reference has been made in the foregoing article to the following of my papers :—

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(†) *Royal London Ophth. Hospital Reports*, Vol. XV.

The Magnet and Electro-Magnet in Ophthalmic Surgery.—*British Medical Journal, Vol.* II (1883), *p.* 957.

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On Closure of Sclerotic Wounds by suturing the conjunctiva. —*Trans. Ophth. Society* (1887), *p.* 291.

Some Points of Progress in Ophthalmic Surgery.—*British Medical Journal, Vol.* II (1889), *p.* 57.

The Employment of the Electro-Magnet in Ophthalmic Surgery. Additional Cases and Remarks—*British Medical Journal, Vol.* II (1890), *p.* 1055.

Foreign body in Vitreous, located by the *x*-rays, and removed by the Electro-Magnet—*Trans. Ophth. Society* (1898), *p.* 218.

Fragment of Steel removed from Retina by Electro-Magnet, with retention of excellent sight.—*Trans. Ophth. Society* (1898), *p.* 221.

On Removal of a Fragment of Steel from the Retina with the Electro-Magnet. With Notes of Two Cases.—*British Medical Journal, Vol.* I (1899), *p.* 335.

DIXIÈME CONGRÈS INTERNATIONAL D'OPHTALMOLOGIE À LUCERNE 3ème LIVRAISON DU RECUEIL DES TRAVAUX. Section A.

Third part of the Report on papers read at the 10th International Congress of Ophthalmology, held at Lucerne, September, 1904.

(*Concluded.*)

The Report contains two other articles bearing on the same subject; the first of these is by Dr. Thomas Axenfeld of Freiberg, in Bavaria, and is entitled "Accidental Lesions in Ophthalmic Surgery," the second is by Dr. H. V. Würdemann, of Milwaukee, Wisconsin, U.S.A., on "Loss of Vision from Accidents, and its relation to the earning ability."

The conclusions arrived at by Prof. Axenfeld are that the percentage estimate of the value, in an industrial point of view, of an injured eye, can at best only be approximately given by the expert, and may perhaps be most appropriately expressed by such terms as "slight," "moderate," and "severe," and the object in view should be not the award of a pension for the injury in its worst possible form, but to

supply to the sufferer a kind of assistance of the nature of a provident help to whatever wage he may be able to earn. The industrial value of an injured eye cannot, and should not, be estimated on a purely theoretical and mechanical basis. The statistical method is not, in this case, applicable, on account of the very great variations in the ultimate wage-earning capacity that follows recovery from the same lesion in different trades and persons. The industrial acuity of vision from a purely optical point of view for the higher occupations, is found to vary from S. = 0.75 (or $\frac{3}{4}$), to S. = 0.15 (or $\frac{1}{7}$), and for lower classes of occupation, from S. = 0.5 (or $\frac{1}{2}$), to S. = 0.02 (or $\frac{1}{50}$). Prof. Axenfeld thinks the pension for the loss of one eye should be about 30 per cent. of the previous wage. Slight disturbances which do not interfere with stereoscopic vision (S. = $\frac{1}{10}$), require no pension. Those who have one eye injured when young should receive less compensation than older workmen, since they have the opportunity of learning another trade.

The article which possesses most interest to an English reader is undoubtedly that by H. V. Würdemann, entitled "Loss of Vision from Accidents." This author has made a special study of the subject, has published a treatise upon it in conjunction with Prof. Magnus, and has taken the trouble to write to the authorities of no less than 55 accident and assurance companies, inquiring what were the rules for indemnity in the case of loss of both eyes, and of one eye, whether cosmetic damage was recognised, the amount allowed, and the length of time over which the payment extends, and, lastly, whether the rates were estimated from experience —that is to say, empirically—or from statistics. Würdemann remarks incidentally that it is astonishing how closely the amounts empirically allowed by these business corporations correspond to the deductions drawn by Magnus and himself from a profound and long-continued enquiry. All societies hold that the loss of both eyes is entitled to the maximum payment. It is equivalent to death in arresting all lucrative employment. Yet it must be admitted that although the sufferer may be no longer capable of practising his own trade, as for example, an engraver, he may still gain some, though a greatly reduced, wage, by piano tuning, basket and brush making, massage, and many other employments.

It is when one eye only is completely or partially lost that difficulties in regard to compensation arise.

In his own practice, which is carried on in Milwaukee, a populous manufacturing town of the United States, containing 325,000 inhabitants, 10 per cent. of ophthalmic cases consulted him on account of accidents to one or both eyes, and the registers

of a large iron company in Pennsylvania gave about the same proportion. Mr. Simeon Snell, of Sheffield, England, consulting the books of the Miners' Permanent Benefit Fund, found that out of a total of 48,262 accidents, the percentage of eye cases was 5.19, by far the most numerous and severe accidents occurring amongst the steel and iron workers. Cohn, again, found that every one of 1,283 workers in metal examined by him, suffered two or three times a year from injuries to the eyes. In the war of the Rebellion 29 per cent. of all injuries affected the eyes. In cities and towns where there are great manufacturing industries, accidents to the eyes are very frequent, and though great care is usually taken to protect the workman from these and general injuries, insurance societies have been formed, the rules of which for the compensation of bodily injuries have been founded partly on experience, partly on expert evidence, partly on precedent, and partly on loss of wage-earning power.

Dr. Würdemann has arranged the various occupations of life in two groups. The first comprehends all those in whom the range of visual acuity is greater, requiring from 0.75 ($\frac{3}{4}$), to 0.15 (1/7) of the normal, such, for example, as the higher professions, fine mechanicians, those pursuing the linen, cotton, and silk industries, seamstresses, printers, and the Services. The second group, from 0.50 (1/2), downwards to 0.50 = $\frac{1}{20}$, include builders, brickmakers, labourers, employés in gas and water works, and many others, but he points out in arbitrating, it must always be borne in mind that individual members of certain trades do not have exactly the same demands made upon their visual powers. He strongly insists upon the fact that practical visual acuity and the scientific standard are entirely different things, and that an individual may have for working purposes a full amount of vision, yet who by the scientific standard shows a deficit. If we wish therefore to estimate with exactitude the damage to the individual case, we must calculate the compensation on the basis that the individual himself has been getting and his probable future earnings.

HENRY POWER.

CURRENT LITERATURE.

NOTE.—Communications of which the titles only are given either contain nothing new or else do not lend themselves to abstract.

I.—CONGENITAL ANTERIOR STAPHYLOMA.

(1) Gallenga, C.—A contribution to the knowledge of opaque Congenital Staphylomata of the cornea, resulting from Intra-uterine Keratitis. (Contributo alla conoscenza delle ectasie opache congenite della cornea de chertite intra-uterina.) *Archivio di Ottalmologia*, 1903, V. 11, Fas. 1-2, p. 2.

(2) Parsons, J. Herbert.—Congenital anterior staphyloma. *Trans. Ophthal. Society*, Vol. XXIV (1904), p. 47.

(3) Nettleship, E.—Two cases of congenital staphyloma of the cornea. *Trans. Ophthal. Society*, Vol. XXIV (1904), p. 63.

(1) Congenital staphyloma of the cornea must be rare, since the literature contains only about twenty cases. **Gallenga** discusses these cases, and then reports one of his own of bilateral, intra-uterine keratitis with staphyloma of the right eye in a child affected with hereditary syphilis. The results of the microscopical examination he gives in detail, the eye having been enucleated at the age of fourteen months. From the clinical facts and pathological observations related by others and observed by himself, Gallenga concludes that, in a certain number of cases, there is not a true irido-corneal staphyloma following ulcer and perforation of the membrane, but rather an ectasia of the cornea consecutive to an intra-uterine irido-choroiditis. Intra-uterine keratitis is secondary to a pathological process of the uveal tract, especially of its anterior part, and it assumes the character of the so-called "internal ulcer of the cornea" described by v. Hippel.

Amongst the pathological details recounted by Gallenga we may notice the very advanced atrophy of the anterior part of the uveal tract and of the pigmentary elements of the entire choroid. It is probable that such an eye, without the profound changes of the anterior segment, would later show pathological albinism, on which the reviewer has insisted when describing the rudimentary stigmata of hereditary syphilis.

A. Antonelli.

(2) **Parsons** describes the case of a child, *ætat* 3 days, affected with staphyloma, noticed at birth. The left eyeball was the seat of a complete anterior staphyloma, projecting half an inch beyond the eyelids. The iris was adherent to the pseudo-cornea, which was so thin as to be almost trans-

parent. In the mucous discharge from the affected eye staphylococcus albus was found. After excision, the globe was seen to be shaped like an hour-glass, and was found to measure 22 mm. from front to back, and 12 mm. from side to side. The staphyloma itself measured 10 mm. from its anterior pole to the groove in the sclera. *Macroscopic examination* of the divided globe yielded the following results : anterior staphyloma extremely thin, composed of iris and covered with a transparent membrane. Its sides were thicker, and consisted of cornea, lined by adherent iris. Posterior chamber and vitreous contained yellow material. Lens, retina, and choroid in place. *Microscopical examination* :—The cornea at the sides consisted of well-marked substantia propria, covered with stratified epithelium. Bowman's membrane absent ; Descemet's membrane intact on each side for a distance of 1 mm. The epithelium stopped short 2 mm. to 3 mm. in front of the sulcus. Anterior to this, the substantia propria was densely infiltrated, and quickly became narrowed to a thin membrane. The thin membrane, forming the whole of the dome-shaped projection, consisted of several layers of nuclei, without any epithelium on the surface. Internal to these layers was, first, an almost homogeneous layer, and, then, the iris, reduced to distorted pigmented epithelium. A fibrinous coagulum, richly infiltrated with polymorphonuclear leucocytes, occupied the posterior chamber. The lens showed leucocytes between the anterior cortical fibres, and also in front of its ruptured anterior capsule. Ciliary body, vitreous, retina, choroid, and optic nerve were infiltrated with polymorphonuclear leucocytes. Briefly, then, the eye was in a condition of commencing panophthalmitis, and would doubtless soon have gone on into rupture and phthisis bulbi. Commenting upon the foregoing and other recorded cases of congenital staphyloma, Parsons points out that they all manifest the same pathological features as when the condition develops in the usual way after birth. The same cause therefore may be responsible for both conditions. That, however, implies an intra-uterine perforation of the cornea, the acceptance of which possibility offers considerable difficulty. Endogenous infection is improbable, but exogenous infection, as from the amniotic fluid, is more likely. It is known that certain diseases, as anthrax, tubercle, typhus, and glanders, and certain infections, as pneumococcus, streptococcus, and staphylococcus aureus, can be transmitted from the mother to the fœtus. The possibility that infection could have occurred at birth or *per vaginam* during parturition is thought by Parsons to be extremely unlikely. The alternative view, that the staphyloma is the outcome of maldevelopment, is

dismissed as inadequate to explain the inflammatory changes present in this and in some other cases. Again, it would not account for the vascularisation of the cornea found in some cases nor for the absence of epithelium from the surface of the pseudo-cornea. Parsons considers that there has been a tendency in England to overlook the importance of intra-uterine inflammation as a cause of congenital anomalies of the eye.

(3) **Nettleship's** two cases of congenital staphyloma are briefly as under. *Case No.* 1.—A lad, first seen when 10 years of age, had no perception of light in one eye, the cornea of which was represented by an oval semi-opaque patch, smaller than the cornea of the other eye. There was a small partial staphyloma at the lower part of the ciliary region. The condition was stated to have been present at birth. The eye was excised, and found to present much the usual macroscopical characters. No measurements and no microscopical examination made. *Case No.* 2.—A female, first seen when aged 10 months, presented a large, circular, white patch involving the lower third of one cornea and the neighbouring ciliary region. Its central part was more prominent than the rest of the structure. The iris was stretched towards the opacity. The anterior chamber was shallow. The lower part of the pupil was hidden by the staphyloma. Baby delivered with instruments, and opacity of eye observed the day after birth.

II.—OXYCEPHALY.*

(1) **Tucker, Captain E. F., I.M.S.—A case of ocular defects associated with congenital deformity of the cranium (oxycephaly.)** *Lancet*, July 9, 1904.

(2) **Morax and Patry.—Blindness and cranial deformity. (Cécité et déformation crânienne.)** *Annales d'oculistique*, août, 1904.

(3) **Velhagen, Karl.—Upon "Tower-skull" and atrophy of the optic nerve. (Ueber Turmschädel und Sehnervenatrophie.)** *Münch. Mediz. Wochenschrift*, 2 August, 1904.

(4) **Taylor, James.—Case of congenital proptosis and meningocele.** *Reports of the Society for the Study of Disease in Children*, Vol. IV, 1904, p. 176.

(5) **Uhthoff, W.—Upon marked exophthalmos in deformities of the skull. (Ueber hochgradigen Exophthalmus bei Schädeldeformität.)** *Klin. Monatsbl. f. Augenheilk.*, Januar, 1905.

*For recent cases, see THE OPHTHALMOSCOPE, Vol. I., p. 114, Vol. II., pp. 102 and 233.—EDITORS.

(1) **Tucker** reports a case of oxycephaly in a Mahratta, 20 years of age. No family history of cranial deformity. The patient was intelligent, his sight and hearing were good, and he was of normal height, build, and development. The cranium showed a projection in the form of a ridge from the centre of the vertical portion of the frontal bone to the central point of the vault, which was situated one-and-a-half inch in front of a line drawn perpendicularly upwards from the external auditory meatus. The measurements of the head and face were as under: horizontal circumference, 49½ cm.; naso-occipital arch, 34 cm.; binauricular arch, 34 cm.; height of the orbits, 4½ cm.; breadth of the orbits, 5 cm.; transverse diameter, 12.2 cm.; antero-posterior diameter, 16.2 cm.; suboccipito-frontal, 16.2 cm.; distance between the two external angular processes, 11.4 cm.; height of the frontal bone, 11.8 cm. The cephalic index was therefore 75.3. The palate was high and arched, and met at the uppermost part in a deep sulcus. Slight genu valgum. Exophthalmos, increased by pressure on lids. External strabismus, especially as regards the left eye. Retinal veins somewhat tortuous. Movements of eyeballs impaired in certain directions. Tucker's communication is illustrated by two photographs of the patient.

(2) At a meeting of the *Société d'ophtalmologie de Paris*, held on July 5th, 1904, **Morax** and **Patry** exhibited photographs of seven patients, all of whom suffered from post-neuritic optic atrophy and a characteristic cranial deformity. The papilla was white with irregular outlines, and the visual acuity was *nil* or reduced to quantitative sight. In all the cases blindness had commenced before the patients had reached 10 years of age, and had evolved somewhat quickly in about three months. Nystagmus was a constant sign. In these cases the cranium was high. It was also relatively narrow, the face being often asymmetrical and elongated vertically. In two of the cases exophthalmos was very marked; the eyes were invariably prominent, the frontal bosses effaced, and the superciliary arches little pronounced. There was frequent headache in four of the patients. Six of the sufferers belonged to the male sex. The authors contrast their cases with the 42 already published by other observers. The etiology of the condition is still unknown. The deformity of the skull, known as "*crane en forme de tour*," is attributed to a premature ossification of the coronal suture (Virchow), and the papillary atrophy to contraction of the optic foramen (von Michel, Manz, Ponfick), to an augmentation of the intra-cranial pressure (Friedenwald), or to meningitis and especially pachymeningitis (Virchow, and then Hirschberg and Goldzieher). It is probable that the same cause may determine

both the precocious synostosis and the neuritis, and it would be advisable to study the affection at the beginning, in order to decide upon the nature of the symptoms, meningitic or otherwise, presented by the patients. This is the chief reason why Morax and Patry now draw attention to this characteristic type of disease, of which at present we know only the ultimate consequences. The affection is unquestionably much more common than would be supposed from the small number of published cases. H. de V.

(3) **Velhagen**, of Chemnitz, has an important communication upon "tower-skull," and especially upon its connection with affections of the optic nerve. He adduces three examples of the condition which have come under his notice. Briefly, the facts of his cases are as follows:

Case No. 1.—A female, aged 23 years, had been affected with exophthalmos, nystagmus, and external strabismus since early life. The deformity of the skull was noticed when she was born. When she was of an age to attend school, sight was found to be defective. Upon examination, R.V. (corrected), 5/20 to 5/15; L.V., fingers close to eye. Optic atrophy—complete in left and incomplete in right eye. Retinal vessels tortuous. Alterations present in visual fields, especially in that belonging to the left eye. Patient's mother had a very high forehead. *Case No.* 2.—A girl, 6 years of age, had suffered from headaches for some weeks, during which time the eyeballs had become prominent and the sight had failed. Upon examination, R.V., hand movements; L.V., no perception of light. There existed pronounced exophthalmos, along with paralysis of the right and paresis of the left external rectus muscle. These signs and symptoms, accompanied, as they were, by "choked discs," led to a diagnosis of an intracranial neoplasm. In the course of a few weeks, however, the discs had become white, and the other symptoms had undergone modification. Under these circumstances Velhagen thought that the symptoms might depend upon the curious deformity of the skull presented by the child, a supposition subsequently found to be correct. The skull, it may be added, was stated to have assumed its peculiar shape when the patient was one year of age. *Case No.* 3.—A man, aged 17 years, presented the symptom-complex of white optic discs, slight exophthalmos, and "tower-skull." Vision (corrected) R., 5/6, and L., 5/10. The patient was one of seven children, of whom a sister manifested slight indications of *Turmschädel*.

Commenting upon the above cases Velhagen points out that oxycephaly is not common. There is no general agreement with regard to the anatomical conditions present in such cases, although everybody admits that the most marked

clinical sign is abnormal height of the skull, hence the name "tower-skull," "steeple-skull," or "*Turmschädel*." The average height of four such skulls in the Heidelberg Museum was found to be 143 mm., as compared with 131.6 mm., the average of 100 normal skulls. The orbits of the former measured 28.4 mm., as against the average depth of 39.05 mm. These deformed skulls are also smaller as regards the base, and are shorter from before back. Virchow's view was that the deformity of the "tower-skull" was due to premature ossification of the sutures between the parietal bones and the occipital and temporal bones, resulting in a compensatory development involving the anterior portion of the cranium. In "tower-skull" the patients may be unusually intelligent, since the brain accommodates itself to the shape of the skull, without suffering in the process. As to the optic neuritis associated with the oxycephaly, it is not unreasonable, Velhagen thinks, to suppose that the one has the same origin as the other. The condition of the cranium is generally congenital, and Velhagen suggests that it may possibly be explained by intra-uterine rickets. The autopsies of Michel and Ponfick show that the optic foramina may be narrow enough to compress the optic nerves, but such a condition is not usual. MAX P.

(4) **Taylor's** patient was a lad, aged 5½ years, whose eyes had always been prominent. He presented an oxycephalic skull, an occipital meningocele, proptosis, squint, nystagmus, and defective mental condition. His sight had recently become much impaired, as the result of atrophy of the optic discs.

(5) **Uhthoff** describes several instances of pronounced exophthalmos in association with "tower-skull," and hydro-

Fig. 1.

Fig. 2.

cephalus internus and externus. The case of "tower-skull"—*Turmschädel*, to use the German equivalent—occurred in a boy, 15 years of age, who was weak-minded, had been blind from early life, and who manifested a deformity of the ear (*see* Fig. 1). His left eye was blinded from keratitis e lagophthalmo, although still prominent, while his other eye was extremely prominent, and by slight pressure could be dislocated in front of the lids (*see* Fig. 2), and had lost all sight, owing to post-neuritic optic atrophy. Uhthoff remarks that bilateral blindness is not common in this cranial deformity. He discusses at some length the pathogeny of the affection of the optic nerve now and then present in oxycephaly.

S. S.

III.—AFFECTIONS OF THE EYELIDS.

(1) Chevallereau, A., and Chaillous, J.—Upon spasmodic retraction of the upper eyelids. (Sur la rétraction spasmodique des paupières supérieures.) *Annales d'oculistique*, T. CXXIX (1903), p. 247.

(2) Delamare and Conor.—A case of permanent tonic blepharospasm of hystero-traumatic origin. (Observation de Blépharospasme tonique permanent d'origine hystero-traumatique.) *Recueil d'ophtalmologie*, XXV (1903), p. 4.

(3) Polignani, L.—Epithelioma of the internal angle of the left eye propagated to the adjacent parts. (Epithelioma dell' angolo interno dell' occhio sinistro, diffuso alle parte prossime.) Tocco, édit., Naples, 1903.

(4) Schirmer, Otto.—On paralysis of blinking and closing the lids movements, together with a contribution to the study of the flow of tears. (Ueber Lidschlaglähmung und Lidschlusslähmung zugleich ein Beitrag zur Lehre von der Thränenabfuhr.) *Zeitschr. f. Augenh.*, Feb., 1904.

(5) Pegoraro, G. R.—A contribution to the study of palpebral favus. (Contributo allo studio del favo palpebrale.) *Archivio di Ottalmologia*, Vol. XI., Fasc. 7-8, Jan.-Feb., 1904.

(6) Birch-Hirschfeld, A., and Kraft. Oscar H.—On morbid conditions of the eye in acanthosis nigricans. (Ueber Augenerkrankung bei Acanthosis nigricans.) *Klin. Monatsbl. f. Augen.*, März, 1904, p. 232.

(7) Fairbanks, Arthur Willard.—Hereditary œdema. *American Journal of the Medical Sciences*, May, 1904.

(8) **Terson, A.**—Palpebral dermatolysis. (Dermatolysie palpébrale.) *Archives d'ophtalmologie*, juin, 1904, p. 346.

(9) **Jurnitschek, F.**—A case of syphilitic tarsitis. (Ein Fall von Tarsitis syphilitica.) *Zeitschrift für Augenheilkunde*, August, 1904.

(10) **Sommer, G.**—Upon primary melanosarcoma of the eyelids. (Ueber das primäre Melanosarkom der Augenlider.) *Woch. f. Therapie u. Hygiene des Auges*, 22 September, 1904.

(11) **Pes, O.**—On acute phlegmonous gangrene of the lid. (Ueber die akute gangränose Phlegmone der Lider.) *Zeitschrift für Augenheilkunde*, September, 1904.

(1) **Chevallereau** and **Chaillous** report two cases of spasmodic retraction of the upper eyelid. The facts are briefly as follows. *Case* 1.—A woman, aged 42 years, manifested a tonic contraction of the levator of each upper eyelid, which failed to disappear either during sleep or under general anæsthesia. As each upper eyelid was rolled in upon itself, the appearance was most peculiar. No cause could be ascertained for the condition, which was of long-standing. *Case* 2.—A man, aged 46 years, presented a retraction of the left upper eyelid, which had existed from birth. The difference between the two eyes was so marked that ptosis seemed to exist upon the right side. Graefe's sign was present in the affected eye.

H. de V.

(2) A young soldier who had suffered from "night terrors" in infancy, received a slight blow upon his left eye, an accident at once followed by blepharospasm of that side. After getting well, the condition recurred after a trivial injury by cinders getting into the eye. When examined by **Delamare** and **Conor**, there was persistent blepharospasm, and anæsthesia of the conjunctiva. V.=1/20. Visual field could scarcely be said to exist. The pharyngeal reflex was absent. There were numerous zones of anæsthesia about the body, particularly upon the left side, analgesia of the upper extremities, and other signs of hystero-epilepsy.

H. de V.

(3) **Polignani's** patient, a female aged 63 years, exhibited a vast ulcerated cancroid of the internal angle, of a part of the upper lid, of a part of the surface of the nose, and of the whole of the lower eyelid. After a generous excision and curetting of the base, the wound was covered by two large strips, one from the frontal, and the other from the zygomatic region. The globe of the eye was uninjured. The permanent results were very satisfactory, without any sign of relapse after two

years. The histological examination of the specimen revealed a typical cutaneous epithelioma.

A. Antonelli.

(4) **Schirmer** cites three cases in proof of his theory that the outflow of tears from the conjunctival sac into the nose is caused solely by the contraction of the lacrymal part of the orbicularis palpebrarum muscle (Horner's muscle), which takes place in the blinking movements which we are constantly carrying out. He holds that neither gravity, nor capillary attraction, nor aspiration through the nose has anything to do with it, but that Horner's muscle by its contraction causes a dilatation of the lacrymal sac, which thus aspirates the fluid into itself (the lower end of the nasal duct being guarded by a valve).

In the first case a student received in the course of a duel a deep sword-cut across the cheek, which just escaped the trunk of the facial nerve, and shortly after the healing of the wound, he became much troubled by constant overflow of tears. A careful examination showed that the tear-passages were quite patent, that the punctum was closely applied to the globe in an absolutely normal position, but that no tears passed down, as evidenced by the fact that a drop of fluorescein did not appear in the nose, whereas on the other side it appeared in the course of a minute. There was no paralysis, except that of Horner's muscle, and that part of the orbicularis which is just at the edge of the lids, as evidenced by the smoothness of the skin at the lid margins when the lids were closed, and the absence of the drawing over towards the nose of the lower lid margin, which alone is responsible for the overflow of tears. The second case was that of a child, 13 years of age, suffering from Erb's muscular atrophy, affecting principally the shoulder girdle and facial musculature. The overflow of tears had lasted a long time. The lids were quite normal, and the punctum was in a normal position. The attempt to close the lids completely was unsuccessful, for a slight interval, about 2 mm., remained. Horner's muscle in this case still possessed a very slight power of contractility—it was more the orbital portion of the orbicularis that was paralysed, and consequently there was still some power of carrying off the tears, but which is insufficient when this becomes excessive. The third case was one of paralysis of the orbital portion of the orbicularis and of the larger part of Horner's muscle—and, accordingly, the mechanism was insufficient to deal with the flow of tears when the latter was at all increased, as by reading or exposure to the wind.

Schirmer arrives at the conclusion mentioned in the beginning, namely, that the flow of tears normally depends

upon the action of Horner's muscle. If this muscle be paretic, as in cases 2 and 3, then the flow is not so rapid, and only small quantities can pass on; if it be totally paralysed, as in case 1, there can be no flow of tears onwards into the nose at all. A. Levy.

(5) From a personal case of favus of the eyelid and the eight cases recorded in ophthalmological literature, **Pegoraro** concludes that this affection is as frequent in young people as in adults, that it attacks the upper lid as frequently as the lower, and preferably the delicate skin of the palpebral surface itself, and not the edges of the lids. On the other hand, in the rare cases of palpebral trichophytis, examination under the microscope has shown the affection of the lashes, in spite of the resistance offered by the latter to parasitic invasion, in comparison with the other hairy parts of the economy. Moreover, the achorion prefers to vegetate on the surface of the tissues, and the failure of the eyelid to participate more often in favus of the scalp or of the face is probably due to the greater mobility of the palpebral skin, which easily drives away dust, spores, or infectious elements. A. Antonelli.

(6) Acanthosis nigricans is a very rare disease, indicated by three cardinal symptoms: (1) characteristic localization (skin of neck, breast, navel, etc.), (2) hypertrophy of the papillæ of the skin, and (3) abnormal pigmentation. The eyelids are frequently involved, the conjunctiva rarely so. **Birch-Hirschfeld** and **Kraft** give particulars and description of a case which came under their observation, in a patient of 68 years, suffering from carcinoma of the stomach. The margins of the lids presented a remarkable appearance through the presence of numerous papillæ which in the region of the caruncula formed large swellings and insulated the cornea. The conjunctiva of the lids was also covered with papillæ. Microscopical examination of an excised portion manifested characteristics of condyloma acutum. A review of the cases on record is appended. A. Birch-Hirschfeld.

(7) **Fairbanks** traces very fully the history of the curious affection known as hereditary œdema, which is of some interest from an ophthalmic point of view, since the eyelids are not infrequently attacked. The characteristics of the malady, as is well-known, are recurrent attacks of acute œdema in various portions of the body, usually of rapid development and brief duration, and often associated with disturbance of the gastro-intestinal tract. The influence of heredity is often extremely marked, and there can be no

serious doubt as to the ultimate neurotic nature of the affection. There are, besides, other cases which are as slow in their development and as sluggish in their course as the forms just described are acute and transient. The former disease may end fatally from œdema glottidis.

(8) **Terson** describes three instances of that curious relaxation of the skin of the upper eyelid named by Fuchs "blepharochalasis," and adds a brief review of the literature of the disease. He identifies the condition as a variety of those cutaneous affections known collectively as "dermatolyses," of which dermatologists have already described a form affecting the eyelids (palpebral dermatolysis). Examination of the skin excised from these cases has shown an atrophy of the dermis and of the elastic fibres, the vessels being more or less varicose, a series of changes probably due to trophic disturbances of the sympathetic nerve. The actual loosening of the skin, which forms the characteristic feature of the cases, is due, according to Terson, to an atrophy and relaxation of the numerous inter-digitations formed between the levator muscle and the deep surface of the skin of the upper eyelid. With regard to the treatment of pronounced cases, the superfluous skin must be resected, and the skin-wound sutured to the suspensory ligament and to the summit of the tarsal plate.
S. S.

(9) **Jurnitschek** recounts in detail an interesting case of tarsitis in a female patient, 38 years of age. The diagnosis of syphilitic tarsitis rested upon the form of the inflammation, its slow development, various glandular enlargements, and some ill-defined bone pains, for there were no other signs of syphilis, either hereditary or acquired. All four lids were involved, the upper ones more than the lower ones. They were thickened, œdematous, and a cartilagenous tumour could be felt to occupy their whole length. The skin could be moved about over the swellings. The treatment consisted of mercurial inunctions and, locally, hot fomentations, under which the condition rapidly improved, and patient left the hospital quite cured. The difficulty in this case consisted in making the diagnosis, which was arrived at by excluding all other agents producing similar disturbance. A. L.

(10) **Sommer** believes primary melanosarcoma of the eyelids to be an extremely rare disease, since in German literature he can find two reports only of the condition. He now describes such a case in a woman, aged about 82 years, associated with violent and repeated hæmorrhage from the growth. The latter was of dark-brown colour, had the size of a hazel nut, and was situated upon the temporal half of the right

upper eyelid. The neighbouring glands were not involved. The diagnosis of melanosarcoma was confirmed microscopically.
MAX P.

(11) **Pes** deals principally with those cases of gangrene of the lids, which follow traumatisms, or are idiopathic, where the seat of entry of the organism cannot be discovered. He recounts several cases, in all of which careful bacteriological examinations were made. He found streptococcus in one, and staphylococcus aureus in another case; there was a negative result in the third case. In reviewing the literature of the subject Pes finds that the only other organism capable of producing this condition is the diphtheria bacillus. Several cases of mixed infection are also reported.
A. LEVY.

VI.—TRACHOMA.

(1) **Hoppe.—What verdict should be given as to the State measures at present in vogue in Prussia for the extirpation of trachoma?** (Wie ist das gegenwärtige System staatlicher Trachom-Bekämpfung in Preussen zu beurtheilen?). *Centralbl. f. prak. Augenheilkunde*, August, 1903.

(2) **Wright, Ruffin A.—Sub-tropical trachoma: with special relation to a new remedy in its treatment.** *Journal of the American Medical Association*, August 8, 1903, and *American Medicine*, August 15, 1903.

(3) **Claiborne, J. Herbert.—Treatment of trachoma.** *Medical Record*, August 8, 1903, and *American Medicine*, August 15, 1903.

(4) **Ripperger, A. A.—Some observations on trachoma.** *American Medicine*, October 10, 1903.

(5) **Chedoudi (Cairo)—Treatment of granular conjunctivitis by scarification and brossage.** (Traitement de la conjonctivite granuleuse par les scarifications et le brossage.) *La Clinique Ophtalmologique*, 25 novembre, 1903.

(6) **Abadie, Charles.—A few reflections on the same subject.** (Quelques réflexions sur le même sujet.) *Ibidem.*

(7) **Marbaix.—Granulous ophthalmia at Tournai.** (L'ophtalmie granuleuse a Tournai.) *Bull. de la Société belge d'ophtalmologie*, mai, 1904.

(8) **Stevenson, Mark D.—A simple instrument for removing the granulations in trachoma.** *Ophthalmic Record*, August, 1904.

(9) Mayou, M. S.—Xerosis of the right cornea following trachoma. *Trans. Ophthal. Society*, Vol. XXIV (1904), p. 30.

(10) Herbert, Major H.—Trachomatous pannus and associated corneal changes. *Trans. Ophthal. Society*, Vol. XXIV (1904), p. 67.

11 Cohn, Hermann.—The cure of trachoma by radium. (Die Heilung des Trachom durch Radium.) *Berliner klin. Wochenschr.*, *No.* 1, 1905.

(1) It appears that since the year 1806 measures have been adopted by Prussia for the prevention of trachoma. For example, special attention has been paid to the eyes of school children and of conscripts; severe cases of trachoma have been sent to hospital; mild cases have been able to obtain medical assistance free; and medical men have been appointed to supervise the treatment of the disease in each district. 350,000 marks have been annually appropriated towards the expenses attending this crusade. If the results thus far obtained appear to be small, Hoppe points out that three great drawbacks to success have up to now existed, *viz.*:—(1) too scanty a vote of money; (2) inadequate means of treating sufferers from trachoma; and (3) insufficient coercion by the State. Hoppe discusses these points one by one, and calls for the erection of special hospitals for the treatment of trachoma, where scientific investigations into the etiology of the disease could be carried out. The help of the laity is also, in Hoppe's opinion, essential for the extirpation of the disease. Examination, isolation, and treatment should be made compulsory. ANNIE T. BARNARD.

(2) Wright has seen cases equal in severity to the common European type only among the Polish Jews in America. He has never seen a true case among negroes. The disease is becoming more prevalent. Health boards should take steps to control its further spread. After seven months' trial of copper nitrate, he recommends its use for the reason that it causes absorption of the granulations and hypertrophied papillæ as rapidly as other applications, with less irritation of the lids and less pain; consequently patients will use it regularly in home treatment. He usually begins with a 5% ointment, but the majority will tolerate a 10 % strength as soon as excessive secretion has been allayed by a silver salt. Bed-time is best for the application, although patients can go about their usual pursuits a few minutes after it is rubbed in.

(3) J. H. Claiborne describes the non-inflammatory form with discrete sago-like grains on both lids, and the inflammatory form beginning with lacrymation, photophobia, and much

discharge followed by granulations, which later coalesce, followed by cicatrization and pannus. Among medicinal remedies, copper sulphate stands pre-eminent. Much can be done to prevent pain in its application by delicacy of manipulation and by wiping away the excess. In the non-inflammatory form, surgical treatment gives the most brilliant results. Knapp's forceps are the best instrument for "expression." The writer describes a modification of these. The cylinders, instead of being fluted, have parallel lines of roughened elevations. These rupture the surface of the granules and allow of easier expression, thus requiring less force and causing less bruising. It is valuable in the inflammatory form when the granules are definite. When the granular stage has passed, copper sulphate, with or without other remedies, is indicated.

(4) After pointing out that for about a year an epidemic of trachoma has prevailed in New York, **Ripperger** states that in certain parts of the city 25% of the scholars have been found to be affected. Indeed, by far the greater number of patients comprised school children of various ages. This frequency of trachoma is to some extent attributable to foreign immigration. Most of the sufferers belong to the poorer class from tenement houses crowded to their utmost capacity. Ripperger confirms the current view that extension of the disease is particularly promoted by uncleanliness and the herding of people under unhygienic conditions. As regards the malady itself, there is an almost complete absence of subjective symptoms. The granulous form is that usually met with. The diagnosis in most cases is easy. The author pleads for individualisation in the treatment of trachoma. In the milder cases, a 2% solution of protargol is recommended for home-use, and under this treatment children are enabled to return to school after four to six weeks. The more severe cases are treated by surgical measures, especially by "expression."

(5) **Chedoudi** is a great upholder of the treatment of trachoma by scarification and brossage, which, in his hands, has given excellent results.

(6) **Abadie**, in referring to the above note by his pupil, Chedoudi, points out that the cause of failures by this method (first described by himself and Darier twelve years previously) is a wrong conception of the method. He emphasizes the importance of making deep *horizontal incisions* in the *cul-de-sac only*, which latter has to be brought into view by an almost brutal rolling of the lid over forci-pressure forceps.

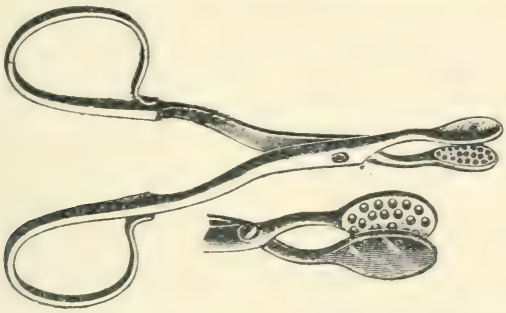
W. Ernest Thomson.

(7) With regard to the prevalence of trachoma at Tournai, **Marbaix** makes the following suggestions: (1) the institution

of an "ophthalmic ambulance"—that is to say, a kind of *crêche* where children can stay from 8 a.m. to 5 p.m. daily, receiving good food and medical treatment: (2) the instruction of the population as to the nature and dangers of the disease: (3) giving to patients the necessary means of cure: and (4) the examination of the eyes of all applicants for employment in workshops, factories, etc.

H. DE V.

(8) **Stevenson's** forceps, as shown by the illustrations, have two blades, one solid and the other perforated by a number of round holes, the edges of which are sharp. The



perforations should be at least 2 mm. in diameter, and be drilled as close together as possible, in order that the sharp, narrow intervening portions may readily cut into the substance of the diseased eyelid.*

(9) A young man, who had been a victim to trachoma for 8½ years, developed xerotic patches in the ocular conjunctiva of one eye and on the cornea of the other. The condition showed some signs of improvement under local treatment by castor oil.

(10) **Herbert's** suggestive communication deals with trachomatous pannus as he has observed that condition amongst the natives of the East Indies. The paper (which gives evidences of marked powers of observation) must, however, be read in the original. It is illustrated.

(11) For the treatment of trachoma, **Cohn** has employed a 1 mg. crystal of radium bromide enclosed in a glass tube, 3cm. long, and 3 mm. in diameter. Every trachoma body is touched with the end of this tube, and the process is carried out daily for from ten to fifteen minutes. Three cases only have been treated in this way, but they were cured quickly, and without pain or complication of any kind.

S. S.

Stevenson's forceps bear a close likeness to those invented by Kuhnt.—EDITORS.

V.—MISCELLANEOUS.

Cirincione.—On the state of our knowledge of the development of the vitreous. (Sullo stato odierno della quistione riguardante la genesi del vitreo.) *La Clinica Oculistica*, April, 1904, and *Ophthalmic Review*, Nov., Dec., 1904, and Jan., 1905.

Cirincione holds that recent investigations have confirmed the theories he had always taught about the development of the vitreous humour. According to his views, the meshwork of tissue springs from the mesoderm: not the layer present at the earliest stages between the ectoderm and the primitive optic vesicle—he has himself shown that this is completely absorbed during the progress of development—but from the mesoblast at a later stage. After the absorption of the primitive mesoderm, the space between the lens and the optic vesicle is filled with a "substance of repletion," which is derived from the retina, and is afterwards replaced by the true vitreous.

HAROLD GRIMSDALE.

Bernheimer, S.—On the location of the centre for the sphincter pupillæ. (Über die Lage des Sphincterzentrums.) *Recueil des Travaux Xe Congrès international d'Ophtalmologie*, Lucerne, Septembre, 1904.

Bernheimer's further experiments on apes showed that the centre for the circular fibres of the iris should be looked for in a small-celled nucleus, situated on either side of the median line in the floor of the aqueduct of Sylvius, beneath the anterior third of the anterior pair of the corpora quadrigemina. Destruction of the roof of the aqueduct did not lead to any permanent pupillary changes, which proves that the corpora quadrigemina have nothing to do with the sphincter movements.

C. MARKUS.

Ahlström, Gustaf.—On the physiology of the eye movements. (Über die Bewegungsbahnen des Auges.) *Recueil des Travaux Xe Congrès international d'Ophtalmologie*, Lucerne, Septembre, 1904.

Brissaud.—Pure verbal blindness. (Cécité verbale pure.) *Nouvelle Iconog. de la Salpètrière*, 1902, and *Arch. de Neurol.*, janvier, 1904, and *Rev. générale d'ophtalmologie*, 31 août, 1904.

At the autopsy the following changes were found in Brissaud's patient: softening of the left calcarine region from

obliteration of the calcarine artery, extending into the cuneus and into part of the lingual lobule: degeneration of the splenium, tapetum, and of the left optic fasciculus and of the right tapetum. H. DOR.

Sachs, M.—On the disturbance of the eye movements through labyrinthine disease. (Ueber Labyrinthogene Störungen der Blickbewegung.) *Recueil des Travaux Xe Congrès international d'Ophtalmologie*, Lucerne, septembre, 1904.

In the case of Sachs' patient, the left horizontal semi-circular canal had been injured during an operation for caries of the petrosal bone. It was then found that the lateral movements of both eyes had become deficient, whereas the power of convergence remained intact. By making use of his convergence the patient replaced to a certain extent the associated lateral movements, as became evident when he was asked to fix a lateral object with both eyes. It occurred then that a strong movement of convergence took place, accompanied by contraction of both pupils, the eye which should have moved outwards turning inwards. In this way the object could at least be fixed with one eye. In order to explain this phenomenon, Sachs insists on the fact that the movement of convergence is the only one which is quite independent of labyrinthine impulses, whereas the deficiency of the lateral movements is accounted for by the lesion of the horizontal semi-circular canal. C. MARKUS.

Werner, Louis.—A Case of Recurrent Paralysis of the Third Nerve. *Ophthalmic Review*, May, 1904.

The patient was a healthy-looking woman, aged 20 years, who had defective vision of the right eye, due to astigmatism. Since childhood she had been subject to periodical attacks of headaches and vomiting at intervals of 4 to 6 weeks. During the last three years the right eyelid had begun to droop and then to close, and this remained so for six weeks. After this the power of opening it returned, but after two years a severe attack brought it on again and diplopia developed. The eye remained closed for three weeks and again recovered. Another curious symptom was excessive salivation during the attacks. C. D. M.

Schanz, F.—A new contrivance for the sighting of guns. (Eine neue Visiervorrichtung.) *Recueil des Travaux Xe Congrès international d'ophtalmologie*, Lucerne, septembre, 1904, and *Zeitschr. f. Augen*, October, 1904.

As presbyopic persons experience some difficulty in accommodating for the ordinary sights, Schanz proposes to make the sights appear at a greater distance from the eye by means of a small metal mirror placed near the end of the barrel.

He thinks that the smaller amount of the accommodation required when using this new contrivance, would also benefit non-presbyopic people in their shooting efforts.

C. MARKUS.

Peilmann, A.—On sideroscopy. (Zur Sideroskopie.) *Zeitschrift für Augenheilkunde*, November, 1904.

Peilmann describes a modification of Asmus' sideroscope which does away with the necessity of examining the deflection of the mirror by means of a telescope. It consists essentially of a strong source of light enclosed in a blackened mantle, having in front a stenopaic slit with a system of lenses which enables the streak of light reflected from the mirror to be accurately focussed on the scale at the distance of one metre. The movements of the mirror can thus be read off directly in ordinary daylight.

A. LEVY.

Hirschberg, J.—A rare operation case. (Ein seltener Operations-Fall.) *Centralbl. f. prak. Augenheilkunde*, December, 1904.

Hirschberg recounts a case of foreign body (iron) in the optic disc, which he successfully removed. The method adopted was to place the hand magnet at the temporal side of the equator of the eye, and by this means to loosen the fragment; then the half-strength of the giant magnet was allowed to act for a short time upon the same place. At this stage an ophthalmoscopic examination was made, and it was found that the fragment had disappeared from the disc, and could not be seen anywhere. It must therefore have moved over to the equator. The half strength of the giant magnet was now applied to the outer margin of the cornea; at once there was sharp pain, and the fragment could be seen behind the iris. The magnet was moved forward, and the foreign body brought through the pupil, falling into the lower part of the anterior chamber; a small incision below, and the introduction of the hand magnet, sufficed to remove it. A small hæmorrhage in the iris, which disappeared in a few days, was the only complication, and 42 days after the operation the patient was sent home with good vision and full field.

A. LEVY.

REVIEWS.

Royal London Ophthalmic Hospital Reports, Vol. XVI, part I, June, 1904.

The last volume of the *Moorfields Hospital Reports*, which bears the date of June, 1904, includes communications by Nettleship, E. T. Collins, Parsons, and George Coats. There are also several plates.

Bulletins et Mémoires de la Société Française d'ophtalmologie, 1904. Paris: G. STEINHEIL, Editeur, 2, Rue Casimir-Delavigne. Price 15 francs.

An account of the meeting of the *Société Française d'ophtalmologie*, held in May, 1904, has recently been published. A large part of the volume, no fewer than 137 pages in fact, is taken up with reports and discussions upon visual acuity in its relations to incapacity for work (see THE OPHTHALMOSCOPE, January and February, 1905). A good many of the remaining papers in the *Bulletins* have already appeared in periodical literature, and have been abstracted in our columns. The others will receive attention in due course.

Grundriss der Augenheilkunde. Von Dr. Charles H. May, Chef der Augen-Klinik der medicinischen Abtheilung der Columbia Universität in New York. Bearbeitet von Dr. E. H. Oppenheimer, Augenarzt in Berlin. A. HIRSCHWALD. 1903.

The translation of German works into English is a commoner thing than the reverse process. Yet here we have a German rendering of the third edition of Dr. May's little book upon diseases of the eye. The book, although unpretentious, is thoroughly trustworthy, and we entertain no doubt that it will prove as useful to German students as it has been to American and to English ones.

Lessons on the Eye for the Use of Undergraduate Students. By FRANK L. HENDERSON, M.D., St. Louis, Mo. Third Edition. Philadelphia: P. BLAKISTON'S SON & CO. 8vo., pp. 205.

This work, written by a practical teacher, consists of twenty-eight lessons upon the more important forms of eye disease. The subject-matter selected has been that which the author has considered to be of the greatest value to the undergraduate student. Minute anatomy; the laws of catoptrics and dioptrics, with their bearings upon the ocular media; and the finer ophthalmoscopic changes—all of which he believes

belong to postgraduate instruction—have been either omitted or else sparingly considered. Such a book employed in the manner intended, subserves a most useful purpose, and can be recommended.

C.A.O.

An Atlas of Human Anatomy for Students and Physicians.—By CARL TOLDT, M.D., Professor of Anatomy in the University of Vienna. Translated from the third German edition, and adapted to English, American, and International terminology, by M. EDEN PAUL, M.D.Brux., M.R.C.S., L.R.C.P. Vol. VI, Neurology and the Organs of the Senses. London: REBMAN, LIMITED. 1904. Price 16s.

This volume gives a very good pictorial representation of the anatomy of the nervous system, and of the organs of sight, hearing, smell, and touch. All the figures are carefully and accurately drawn, many of them are coloured, and all are more or less instructive. They will be of considerable help to the student, and will supplement his textbooks and practical work. To the practitioner this Atlas will be a convenient means of revising the anatomy of the parts mentioned when time and the lack of opportunity prevent him from doing so on the *cadaver*.

The descriptive letterpress is placed around the illustrations, the structures being indicated by dotted lines. Owing to the number of the structures labelled and the double terminology (English and Latin) the effect is somewhat bewildering, and, personally, we are not impressed with the advantages of this system.

The section on the anatomy of the eye contains 69 figures, which are, on the whole, well executed. It is to be regretted that no figure illustrating the lymph-channels of the eye has been included among them. Such a diagram might well replace Figures 1359 and 1360, which are of no particular merit and of no very evident value. The figures representing Tenon's capsule would be much more comprehensible if that structure were printed in colour. The appendix, which consists mainly of notes by the translator comparing English and German terminology, is instructive and greatly enhances the value of the book. These notes will be useful to English ophthalmologists who have to read German literature, besides being of great interest to the pure anatomist.

We can heartily recommend this volume as a trustworthy guide to the study of the anatomy of the eye. It will form a valuable addition to the library of neurologists and ophthalmic and aural surgeons.

J. JAMESON EVANS.

Die Augenärztlichen Operationen. Von Wilhelm Czermak. Wien, 1904. Verlag von Karl Gerolds Sohn, Barbaragasse.

With the issue of this instalment, the 18th and the 19th, ends Czermak's monumental treatise on ophthalmic operations, a work which was begun in the year 1893, and which extends to 1,234 pages of generous dimensions. The present section includes descriptions of complicated cataract operations, the removal of foreign bodies from the interior of the eye, and operations for detached retina, in addition to indices, and, curiously enough, a preface, dated September, 1904. In this last respect, but in no other, Czermak's cyclopædia reminds one of Lawrence Sterne's immortal "Tristram Shandy," the preface of which is to be found somewhere in the middle of the book.

Traité d'hygiène et de pathologie du nourrisson et des enfants du premier age. Tome deuxième. Publié sous la direction du Dr. Henri de Rothschild, de Paris. Paris: Octave Doin, Éditeur, 8, Place de l'Odéon. 1905. Price 15 francs.

The second tome of Dr. Rothschild's gigantic treatise deals with diseases of the eye, nose, larynx, ear, skin, respiratory organs, heart, liver, spleen, and peritoneum, as they occur in young children. The section upon diseases of the eye, the work of Dr. Alphonse Péchin, occupies 246 pages, and is freely illustrated. It is one of the most complete treatises of the kind we have seen. It is not systematic in the sense that it attempts to describe all diseases of the eye in childhood. On the contrary, Péchin devotes considerable attention only to those affections peculiar to childhood or to those met with more frequently then than at a later period of life. Some of the more important congenital malformations, as for example, persistent hyaloid artery, receive full treatment. In order to give readers an idea, however rough, of what the section contains we may glance at the chapter devoted to congenital dacryocystitis, a commonplace enough affection which receives scant and inadequate mention in the orthodox text-books of ophthalmology. After pointing out that this form of dacryocystitis may be confused with conjunctivitis, Péchin passes on to study the anatomy of the lacrymal passages in the fœtus and the baby, and, in doing this, avails himself mainly of the well-known researches of Rochon-Duvigneaud. The lower end of the nasal duct is directed towards the mesial line, and the canal straightens itself as the superior maxilla develops in height. The canal is divided into compartments, as it were, by diaphragms placed at different levels. One of the most important diaphragms forms a reduplicated fold at the lower end

of the canal. This is often imperforate, so that the epithelial *déchets* filling the canal cannot escape, and may indeed cause the membrane to distend bladder-like, a condition described by Bochdalek, nearly forty years ago, under the name of *Endblase*. Péchin thus traces stenosis to an impermeability of the lower end of the nasal duct, and if to that be added infection from any cause whatever the clinical picture of congenital dacryocystitis will result. Hereditary syphilis or tuberculosis may be the determining factor, in that it may lead to atresia or adhesions of the walls of the canal. The condition is generally unilateral. Shortly after birth, a slight catarrh is observed, accompanied by watering of the eye. Pressure upon the lacrymal sac causes pus or muco-pus to exude from the puncta lacrymalia. Although this is the common form, yet a definite swelling, inflamed or otherwise, may exist at the inner corner of the eye. Fistula is rarely present. Bacteriological examination reveals the presence of staphylococcus aureus, pneumococcus, micrococcus tetragenus, or Fraenkel's diplococcus (*sic*). Recovery now and then ensues in the course of a few days spontaneously. Treatment comprises frequent pressure-massage over the sac, and collyria of boiled water, zinc sulphate (1:40), or silver nitrate (11:50 or 1:200). In obstinate cases one or other canaliculus should be slightly widened, and a small Bowman's probe passed down the duct.

The British Medical Association Year Book for 1905.
Published by the ASSOCIATION, 429, Strand, London.

This year book contains information likely to be serviceable to those interested in the British Medical Association, such as the laws, lists of members, council, committees, and branches and divisions of the Association. It also contains, as do most of the Association's publications, a goodly number of advertisements of proprietary articles intended for the rearing of infants, the strengthening of children, and the sustenance of old age.

NOTES AND ECHOES.

Professor Rollet.

OUR distinguished contributor, Dr. Étienne Rollet, has been appointed to the Chair of Ophthalmology in the University of Lyons, in succession to the late Professor Gayet, who died recently from the effects of a carriage accident. THE OPHTHALMOSCOPE extends its cordial congratulations to the new Professor, whose work in our specialty is well and widely known.

Recent Deaths.

AMONGST the deaths of notable ophthalmic surgeons to be recorded this month comes that of Count Piedro Gradenigo, professor of ophthalmology in the University of Padua, at the age of 74 years. As a young man he served in the rising against Austria. For ten years he was surgeon to the Venice Hospital, and he was appointed to the chair at Padua in 1873. Count Gradenigo, who came from an illustrious family that has given no fewer than four Doges to Venice, was one of the first in Italy to employ the ophthalmoscope. His contributions to the literature of ophthalmology included many valuable papers, which have recently been published in volume form by Ovio and Bonamico, two of his favourite pupils.

From Glasgow the death is announced, at the ripe age of 80 years, of Dr. J. R. Wolfe. Dr. Wolfe was a native of Breslau. He graduated M.D. of Glasgow University in 1856. He served as surgeon to Garibaldi during the campaign in Sicily, and afterwards acted as the Paris correspondent of *The Lancet*. He was later appointed ophthalmic surgeon to the Royal Infirmary, Aberdeen. On the death of the celebrated Mackenzie, Dr. Wolfe came to Glasgow, where he founded the Ophthalmic Institution. He filled the post of consulting ophthalmologist to the Glasgow Royal Infirmary, and held the professorship of ophthalmology at St. Mungo's College. About twelve years ago Dr. Wolfe, deeming a change of climate desirable, migrated to Australia, where he became surgeon-oculist to the Governor of Victoria, Lord Hopetoun, now the Marquis of Linlithgow. He returned home about four years ago, and lived in retirement from that time until his death a short time ago. His name was particularly connected with skin grafting *en masse*, the cure of detached retina by aspiration, and a modification of the operation of the extraction of cataract as practiced many years ago. Although Dr. Wolfe by no means saw eye to eye with his colleagues in all things, yet there can be no doubt that he was a man of considerable ability and of wide professional experience.

* * * *

"Radium cures Ophthalmia."

IT were trite to say that the exact value of the new radiations in eye work has not yet been determined. Both the *x*-ray tube and the high frequency electrical current have been used successfully in the treatment of trachoma. As most of

our readers know, the most recent form of radiotherapy—radium, has been applied to the same malady by various workers, both British and Continental. The other week, however, the icteric press stumbled on the fact, and fathered the original upon Professor Hermann Cohn*, with the result of much woefully inaccurate but sensational copy. To see what workers preceded Cohn, we may turn to the introductory chapter by Treacher Collins appended to the translation by Parsons and Snowball (1904) of Dr. J. Boldt's essay on Trachoma. There we find the following note upon treatment carried out at the White Oak School, an ophthalmia school under the control of the Metropolitan Asylums Board:—"About six cases have been treated with radium. A tube of radium bromide has been held over the everted eyelids for five or seven minutes daily. This had to be continued for from three to ten weeks before any reaction was produced. If the exposures to the radium could be made for half an hour at a time, treatment with it would probably prove more efficacious. It would, however, be tedious to both patient and nurse to hold a tube over the everted lids for so long a time" (p. XXXII). It is somewhat amusing to imagine the surgeon holding the tube or directing the nurse to hold it in contact with the lids for half an hour. With a strip of sticking plaster he might avoid so unnecessary an expenditure of muscular energy, while the lid might be kept everted by a simple mechanical device. We may congratulate ourselves that the yellow press in this instance has chosen a German professor for its inaccurate attentions, and has spared its own countrymen from such ill-advised and embarassing advertisement.

* * * *

Photographing the Fundus Oculi.

To photograph the fundus of the eyeball is clearly to place a new weapon in the hands, not only of ophthalmologists, but also of physicians and surgeons generally. The day may come when any practitioner wishing to ascertain the state of the fundus oculi in a patient will send him straightway to a specialist photographer, much in the same way that most medical men now send their Röntgen ray cases to unqualified persons for examination. If the ophthalmologists are wise in their generation they will take steps to keep this highly technical branch of

* For abstract of original communication see *p.* 93 of the present number of THE OPHTHALMOSCOPE.—EDITORS.

work in their own hands. It is surely enough for our long-suffering specialty that a large proportion of legitimate practice has been diverted to the shops of the optologist and the spectacle makers and the chemist-opticians and the rest of the pinchbeck community.

* * * *

The apparatus for photographing the interior of the eye devised by Dr. Walther Thorner of the University Eye Clinic at the Royal Charité of Berlin has been recently described and figured in a London illustrated paper. It has overcome the difficulties of illuminating the inner globe of the human eye and of including in the field of the camera considerably more than the central part of the fundus. With a soft flashlight exposure and a quick plate a good image of any part of the fundus can be obtained. Thorner's results, however, are nothing like so good as those of Professor Dimmer, judging by the photographs exhibited by the two men at the Lucerne Congress in September last. A brief note of Dimmer's work and apparatus appeared in THE OPHTHALMOSCOPE for December, 1904. We purpose in an early issue to publish a full account of his apparatus, together with reproductions of some of his photographs.

* * * *

The Treatment of Ametropia by Massage.

That Mr. Stephen Smith's vagaries have attracted notice elsewhere than in Great Britain is attested by the following paragraph, which appeared in our contemporary, *American Medicine*, on December 31st, 1904:—

"**Therapeutics of Ametropia by Massage.**—One of the most amusing and illuminating of controversies in reference to eye-strain has lately been going on in English medical and lay journals. It was sprung by an antivivisectionist 'ophthalmic surgeon' of London, who announced that he could extinguish ametropia by some sort of massage of the eyeball. Mr. Stephen Smith thought he had discovered something new, and as he had no knowledge of the history or science of ophthalmology, he was perfectly sincere in his belief. But for many years a French oculist, Dr. Domec, of Dijon, has advocated this theory, and at the 1899 Ophthalmic Congress at Utrecht, Professor Darier approved Dr. Domec's contention. The results, of course, have been *nil*. Any oculist with knowledge of his science can see that whatever may be the influence of massage in changing the dimensions and

shape of the eyeball must be temporary. 'The last days' and 'the doom of spectacles' are simply funny or melancholy titles to him. Moreover, so far as priority goes, our American cranks have long been furiously advertising the same cure of ametropia by massage. The foreign crank cannot beat the American variety in devising absurdities in therapeutics. A London optician at once challenged Mr. Antivivisection Smith, agreeing to furnish ametropes for a public trial of the method under trained experts and judicial conditions. There is no hope, or danger, that the challenge will be accepted."

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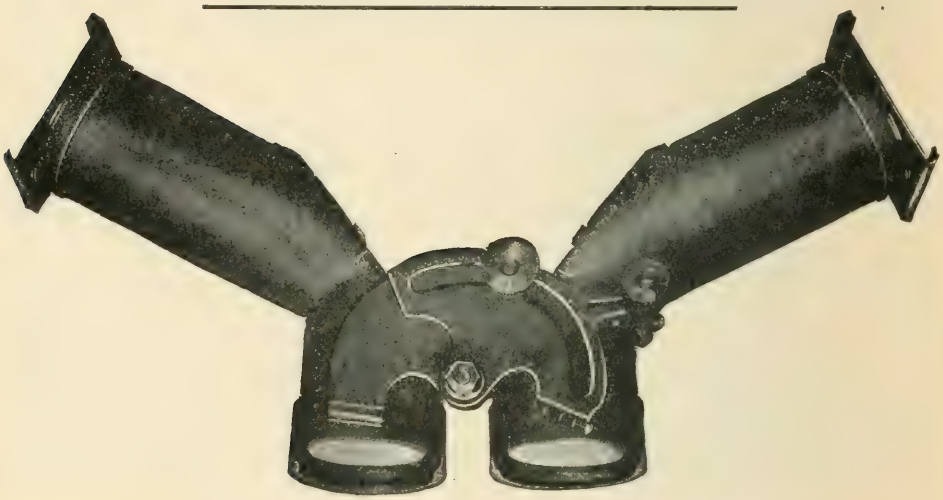

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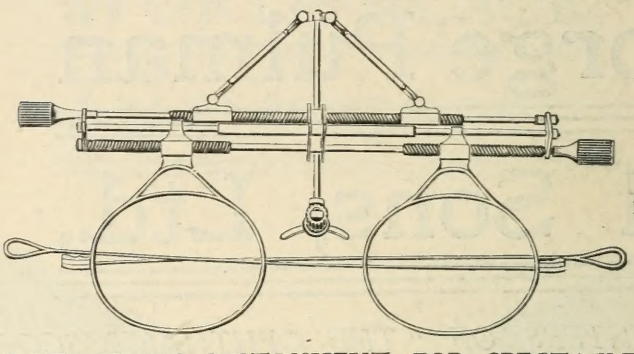

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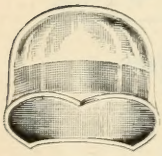

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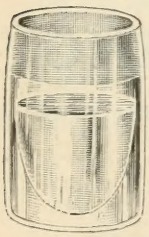

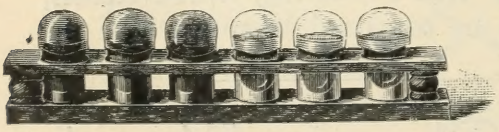

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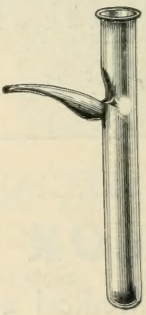

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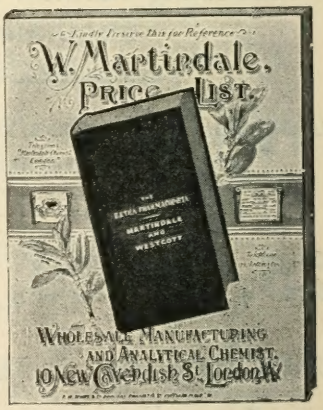

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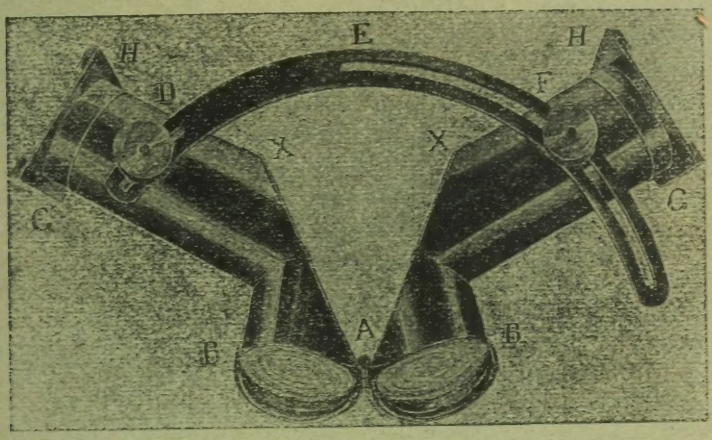

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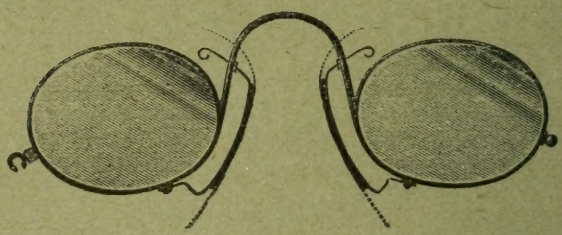

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